BULLETIN 614 AUGUST, 1940

The Ohio Farmer and His Milk Market

C. G. McBride

OHIO
AGRICULTURAL EXPERIMENT STATION
Wooster, Ohio

CONTENTS

This page intentionally blank.

THE OHIO FARMER AND HIS MILK MARKET

C. G. McBRIDE

INTRODUCTION

Many Ohio farmers find milk marketing to be one of the most important and at the same time one of the most complicated operations of the farm business. This bulletin deals with some of the problems arising in the day-to-day contacts of the producer with the market and the various agencies involved. The emphasis is upon the interests of the individual producer rather than upon the peculiar problems involved in marketing milk through a cooperative association.

The material presented in this bulletin comes from studies of the experience of approximately 400 farmers in 5 different areas. These studies were confined to farmers selling whole milk either for fresh consumption or for manufacture and included:

(1) Green Township, Wayne County, a typical whole milk area in which market outlets included milk dealers in Cleveland, Akron, and Orrville and a manufacturing plant. Green Township was studied in 1930 and again in 1935.

(2) A survey during the spring and summer of 1936 of the farms selling whole milk located on State Highway Route 42 between Cincinnati and Cleveland. This survey involved producers selling to five major city markets (Cincinnati, Dayton, Columbus, Akron, and Cleveland), several smaller cities, and four large manufacturing plants.

(3) An analysis of monthly deliveries of 100 of the 1,200 farms selling market milk in the Stark County markets, Canton, Alliance, and Massillon, for the years 1932-1937, inclusive.

(4) An analysis of average returns from milk sales as disclosed in the farm account books of 67 farmers in Medina County for 1936 and 1937.

(5) A study of the information contained in the dealer statements received by a group of farmers in the Toledo area. This study covered in some instances a period of 14 years, 1924-1937, inclusive.

The areas studied are so located that they provide a representative sample of farms from sections of the State where farmers engage to the greatest extent in marketing whole milk. Conditions differ widely as to type of production, kind of market outlet, extent of producer organization for cooperative marketing, and other factors. The following data on type of farm and location of market are significant.

In the cross-section sample of Stark County producers, the farms averaged approximately 100 acres in size. The farms on Route 42 and those from Medina County on which farm records were kept were approximately 125 acres. Two methods were used in collecting information about number of cows. In Green Township the records of the county auditor's office were gone over to arrive at the total number of cattle listed for taxation. Later a check of a certain number of these farms was made for cows in milk, and it was found that the number of cows in milk was approximately 66 per cent of all cattle listed. In this township the farms averaged 12 cattle listed for taxation and between 8 and 9 cows in milk. The farms studied on Route 42 averaged 9 cows. The sample of the Toledo area averaged 10 cows. The Stark County group and the

farm-account group of Medina County averaged 11 cows per farm. It would appear that in the area covered by this study, the number of cows per farm fluctuated roughly around 10. A comparatively few farms were found with less than 5 cows, and it was unusual to find more than 15 cows per farm in this area.

The average distance from the farm to the receiving plant in city milk sales varied with the size of the city. The average distance of producers on Route 42 from the city receiving plant was for Cleveland 30 miles, for Cincinnati 24 miles, Columbus 19 miles, and Dayton 17 miles. In Stark County the average distance was only 10 miles. The shortest hauling distances to the platform where the milk was first received were to the manufacturing plants. From the Lodi plant, however, some milk was later transported to Cleveland.

FINDING AND HOLDING A MARKET

A contributor to the *National Stockman and Farmer* writing under the name of Peter Slagle, about 1900 made the statement that the dealer creates the milk shipper. He was describing the growth of the Pittsburgh market. It was his contention that rarely did the farmer take the initiative in seeking a whole milk market.

Slagle's theory appears to be supported in the experience of the farmers interviewed in these studies. The most common experience was that they had been solicited in some manner. Sometimes a new truck route was being built up and they were included. Many got into the market by moving onto a farm that was already on an established truck route. Most of these truck routes were organized by milk buyers seeking an increase in supply. A trucker sometimes built up a load of milk and then went into the market and sought a dealer or dealers who would buy it. This was particularly true of the Cleveland area.

The condition described in the previous paragraph applied especially to those who began selling whole milk as far back as 15 or 20 years ago. A somewhat different situation prevails at present in the areas where the transportation of milk is controlled by producers' organizations. If a dealer depends upon the association to provide his entire supply, then as his requirements increase, the association transfers a certain number of producers to him. Under these circumstances the opportunity of getting into the market depends upon whether a farmer is located so that his milk can be placed on an association truck, and upon whether new milk is being added to the market. Many markets under association control now have under inspection a large excess of milk beyond the actual requirements for fresh milk and cream sales of the dealers. This milk is known as manufacturing milk, and any increase in fluid milk requirements of cooperating dealers is met by transferring milk from this classification. The result is a higher net return to the entire group for all milk sold, and the association is relieved of the necessity of developing new producers for the market.

A most significant angle of this problem of finding a milk market is the question whether the present situation affords an open opportunity for farmers to enter the whole milk market when they desire to do so. In general, the areas covered have ample supplies under inspection to meet city requirements. In the four years, 1935, 1936, 1937, and 1938, a very small number of producers was taken directly into the city fluid milk markets. In 1936 a small block of producers was taken from the cheese plant area and incorporated into the Stark

County organized market. In 1937 one buyer in the Dayton market added a block of milk in Indiana to the inspected supply for city distribution. In general, there has been little chance for a producer to enter the city market directly.

There has, however, been almost unlimited opportunity for farmers in these and other areas to attach themselves to plants manufacturing evaporated and condensed milk. There has been a marked increase in the number of outlets open to farmers in this field. Some of these plants have very rigid sanitary requirements for a part of the supply purchased, but in most areas a farmer can start into a whole milk manufacturing market with but little or no addition to the sanitary requirements for producing sour cream.

A consideration hardly less important than finding a market is that of holding one, once it is obtained. In the early history of milk markets it was customary for dealers to meet the changing requirements both as to seasons and as to cycles of production by dropping off and taking on shippers. As supplies increased, shippers were dropped. When production went down, those who had been dropped were picked up again or new ones were found to take their places. The shipper's tenure in the market was, therefore, not very secure.

This situation has also changed with the organization of producers surrounding the larger city markets. As additional producers were taken into the market they were solicited for membership in the producer association. When the requirements of the market dropped off or production went up faster than consumer demand, it was no longer possible for the dealer to drop these producers. They were members of the organization and entitled as much to a market as any other members. The result has been that in recent years those producers who are members of strong producer organizations have enjoyed a greater degree of security of market than was the case before the cooperative movement was well established. This condition has, however, created some serious problems with regard to average returns for all milk sales. These problems will be discussed later in connection with marketing plans.

THE MILK STATEMENT

Among the most important of all the connecting links between the producer and his milk market is the dealer's milk statement, which should accompany the producer's check each pay period.

The milk statement has both immediate and long-time value to the producer. It may be used for three important purposes: first, to check the returns received against the product delivered to determine whether the payment for milk was correct; second, to provide data on daily deliveries, milk classifications, price, etc., which are needed in keeping accurate farm accounts; and third, to provide a legal record of a transaction between the seller and buyer that could, if necessary, be presented as valid evidence in a court of law.

An examination of some samples collected reveals many shortcomings in dealer statements in use in these areas. The ones reproduced as figure 1 are typical of many still in use. The one designated as A is a strip of adding machine tape with 15 numbers of 3 figures each, added to make a total of 2792. Presumably this is a record of 15 days' delivery of milk. A name, a number, and "Dec. 15," but no year, have been written at the top. The remaining data are apparently a calculation of total gross value of milk at 3.7 per cent butterfat test, with deductions for hauling and for some other purpose, not desig-

nated. From the standpoint of checking the accuracy of the transaction this statement falls short in many respects, to say nothing of its incompleteness as a record for filing purposes. As evidence in a court it would be of little or no value.

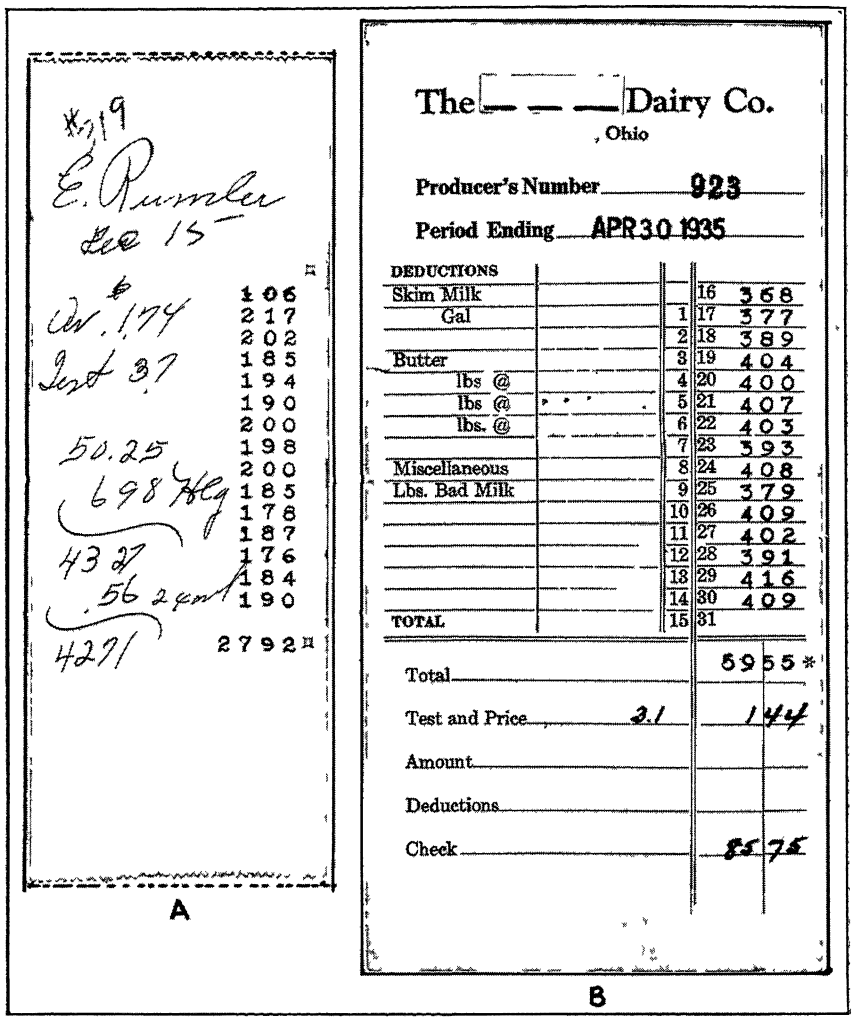

Fig. 1.—Examples of inadequate milk statements received by Ohio farmers

The statement of which one side is reproduced as B in figure 1 uses a number instead of the name to identify the producer. The selling period is stated clearly and daily weights are recorded. The space for deductions does not list hauling or administration, but there are ample blanks here for adding them.

On the reverse side of this statement there was mimeographed a percentage distribution of milk into classes with the price of each class. This statement was as follows:

Class I	62.29%	@	$2.15
Class Ia	2.11%	@	1.70
Class II	16.35%	@	1.55
Class III	19.25%	@	1.23
Average			1.87
Deduction			.02
Net average			1.85

There was also a pencil calculation in which 5,955 was multiplied by 25. This was evidently the computation of the deduction to be made for hauling. The price of $1.44 for milk of 3.1 per cent butterfat was apparently reached as follows: From the $1.85 net average shown in the mimeographed statement referred to, 25 cents were deducted for hauling. This gave a price of $1.60 per hundred at the farm for milk of 3.5 per cent butterfat. This milk was 4/10 per cent, or 4 points, below the base test, and the net price of $1.44 shows a difference of 16 cents, indicating a butterfat differential of 4 cents per point. This statement would have been a much better record of the transaction if the gross market value and the butterfat differential had been set down and the deductions shown as such on the face of the statement.

In figure 2, which reproduces three statements covering 1 month's deliveries, is the most complete record of all the examples. Each day the trucker delivering the milk is given a hauler's receipt showing the can number of the shipper and the pounds delivered (A). This may be turned over to the producer if he requests it. At the end of the month the producer is given a summary of daily shipments (B). Attached to his check is the further statement shown in figure 2 (C). Here is to be found a record of each of three bacteria counts and each butterfat test made during the month. In this market a base and surplus plan is in effect, and the statement shows the producer's assigned daily and monthly base and the distribution of the month's deliveries between base and surplus. This record with the daily shipment summary makes a more nearly complete record than is generally found. The statement lacks two items that should be included, the price of milk at base test, and the butterfat differential.

The discussion of statements has been largely from the viewpoint of their adequacy for the purpose of checking the accuracy of the transaction. In order that the seller may make a complete check of the accuracy of his returns it is necessary that the milk statement carry certain information. The total pounds of milk delivered is the first requirement. The average butterfat test and the butterfat differential to apply above or below the base test should appear on the statement. Most statements record the average test for the pay period but very few of them give the butterfat differential. Inasmuch as quotations in fluid milk markets are always made in terms of an agreed base butterfat test, the price to apply to milk of base test should appear on the statement. The four factors, base test, price at base test, butterfat test of milk delivered, and the butterfat differential, are essential in checking accuracy of the calculations.

In markets where a base and surplus plan is in operation and producers are paid two or more different prices for milk delivered, it is necessary that the division into base and excess over base be shown on the statement. Although not essential in calculating the actual returns for the pay period, it also is

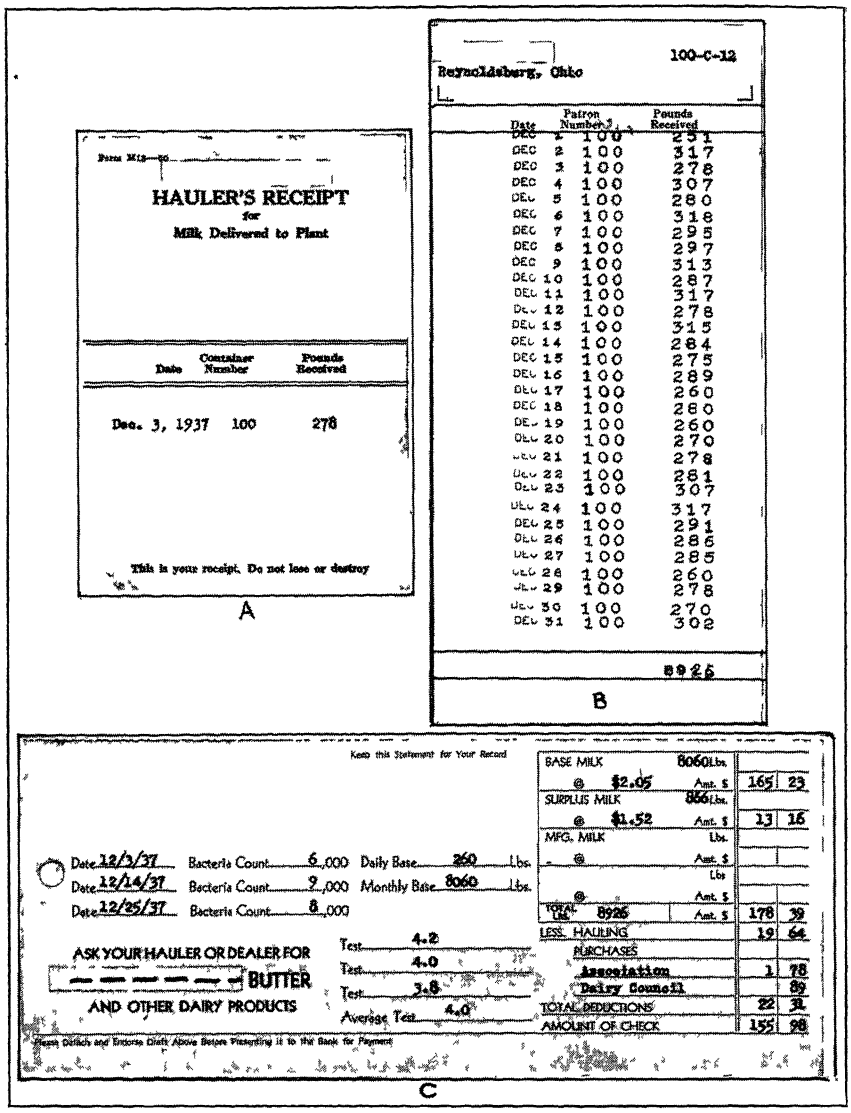

Fig. 2.—Examples of complete milk statements received by Ohio farmers

desirable that the statement carry a notation of the allotted base for the period so that attention of the producer is called to performance with respect to his allotted base.

Another important section of the statement is that which records deductions. In the areas studied there is a wide and confusing variety of procedure. In many markets there are fixed deductions for market administration by producers' associations or control boards. Sometimes these are taken off the

quoted price, and sometimes they are shown as a deduction on the statement. These deductions should appear with those for hauling, Dairy Council, and other costs of marketing. Deductions for merchandise, such as butter, strainer pads, cans, etc., should be separated in the statement from the cost-of-marketing deductions.

A very important use of milk statements is as a basis for farm accounts. The month-to-month record of returns of the dairy enterprise can best be gotten from the milk statements. With complete data on returns and marketing expenses by months, an analysis of the year's operation can be made without a great amount of calculation. In comparing the financial advantages of various market outlets it is necessary to know the average net return per hundred pounds for all milk sold during the year. This cannot be gotten by adding the prices of all the pay periods and dividing by the number of periods. The total value by pay periods must be added for the yearly total and this sum divided by the total number of pounds sold. A monthly recording in the farm accounts record book of the data from the milk statements as they are received is the best preparation for this type of analysis.

A third and sometimes an extremely important use for milk statements is as evidence in a court of law. If a dispute arises between buyer and seller it very often happens that the milk statement is the only evidence of any sort of the transaction. In this case it is very important that the statement bear not only full information as to the amount of milk delivered and its price, but also exact data on the names of buyer and seller and the period involved. The statements discussed have been deficient in several respects, and unfortunately it is generally true that the less reliable the dealer, the more likely is his statement to be defective.

Conversations with producers in this study lead to the conclusion that a great many producers are not satisfied with their milk statements, but that they hesitate to make a protest direct to the buyer for fear that he may drop them. Producers' associations in general have brought influence to bear for more complete statements and in some instances have gone so far as to take over the service of writing the statements and issuing the producers' checks. It is a definite responsibility of a cooperative organization selling a producer's milk to see that the buyer furnishes either to the cooperative or to the producer a complete statement each pay period.

During the period the Burk Act was in effect in Ohio all milk dealers were licensed. In the application for license there were specifications for the milk statement. In making application each dealer agreed, if he were granted a license, to furnish to the producer on his milk statement the following information: (1) name and number of patron; (2) pounds of milk received with a statement of its classification; (3) scheduled price for 100 pounds of milk at basic test; (4) the butterfat differential; (5) average butterfat test of milk received; (6) price or prices for milk at average test; (7) gross amount or value; (8) deductions for (a) hauling, (b) merchandise and supplies, (c) producers' associations, (d) Dairy Council, (e) country plant differential, (f) all other deductions; and (9) statement of pounds received daily unless weight slips are forwarded daily. The operation of the Burk Act did not continue long enough to establish thoroughly the use of these complete statements in the industry throughout Ohio. These requirements were written into the license application after thorough study by both producer and dealer representatives. They may be regarded as a sound statement of the essentials of a good milk statement.

WEIGHING, SAMPLING, AND TESTING

Contrary to common practice in merchandising other commodities, a large percentage of the milk purchased from farmers in Ohio is paid for on the buyers' weights and butterfat tests. No single aspect of milk marketing has caused more complaints on the part of producers than that of the butterfat test. In the personal interviews of this study the matter of weighing and testing was always discussed, and the opinions expressed ranged from bitter distrust and dissatisfaction to complete confidence and satisfaction.

There are three methods of sampling and testing milk in use in the areas studied. The original method and the one still in use in a great many cases is the dealer sample and test in which the entire operation is done in the dealer's plant and under his entire charge. The second is the outside laboratory test performed by a commercial concern on a service charge basis. Generally the samples are taken by the dealer, but sometimes the sampling is also done by a representative of the laboratory. It is obvious that it makes considerable difference in the matter of protection of the producer's interest who does the sampling. The third method, in use in Columbus, Akron, Dayton, Canton, and several other markets, is association sampling and testing. Samplers and testers are employed by the producers' association. The samples are taken and placed in a cabinet under lock. The association representative holds the key to the cabinet. The cabinet is left in the plant and the key to the plant is held by the buyer. This plan provides complete protection to both parties against any tampering with samples. When the association tester is running the tests the buyer is privileged, if he desires, to run concurrent tests from the same samples or to check the tester in any manner he may desire.

A summary of the replies of producers in the study along State Highway 42 will give a fair cross section of producer opinion on tests. The consensus of opinion in the other areas was very close to this:

Of 75 whole milk shippers interviewed, 65 gave a definite opinion on this phase of marketing. Forty-six expressed themselves as satisfied with the method of testing and confident that the results were fairly accurate. Nineteen were not satisfied. The proportion was approximately seven satisfied to three dissatisfied.

In the fluid markets of Columbus and Dayton, where the producers' associations take and control the samples and do the testing, there was a high degree of confidence on the part of farmers in the fairness of the test. There was also a general feeling of confidence in the accuracy of testing in the evaporated milk plants buying milk for manufacturing purposes.

Most of the dissatisfaction and distrust was found among farmers selling to small dealers, and particularly among those who had changed dealers frequently. The producer is inclined to arrive at his conclusion by comparing the test from his present outlet with that of some previous connection. A few compare market tests with those of the dairy herd improvement association tester. Some have check tests made occasionally by the vocational high school. Only one of the farmers interviewed said that he had a Babcock tester of his own.

THE PRODUCER'S STAKE IN TRANSPORTATION

The conditions of transportation in the areas studied vary so widely that it will be necessary on certain points to deal with each market separately.

Transportation arrangements in these areas have grown to the present status by a process of slow building and evolution. In meeting the needs for

increased supplies in city markets, the addition of a full truckload at a time was a distinct advantage. This fact was an incentive for a man who could raise the money or the credit to finance a truck to build up a truck route. In other instances dealers solicited enough new producers to make a truckload and then employed the trucker. Later, when the trucking was taken over wholly or in part by the producer associations, these truck routes were maintained as taken over or the reorganization was a slow process.

A significant fact that stood out in all the areas was that the producer knew the trucker better than he knew either the dealer or his association leaders. This fact makes the truckman a very important cog in the marketing machinery. He is in daily contact with the producer and can be a very important factor in building sentiment.

Each producer interviewed was asked who employed the hauler. A very small percentage of those asked were not certain as to this point, but the great majority knew whether he was dependent for the continuation of his route upon the dealer or the producers for whom he hauled.

In the Stark County area the members of the local in the producers' association have the responsibility of selecting a trucker. He then enters into a contract with the association. This arrangement is necessary from a legal standpoint because the local is not incorporated and as a local could not enter into a binding contract. There is almost universal approval of this plan on the part of the producers in this area. They feel that the trucker so employed feels a definite responsibility to the producers on his route and also to the central association office.

The survey of farms along Highway 42 gave the best opportunity to compare producer-trucker relations. All varieties of trucking control were found. Some truck routes were dealer operated, some were on a lease basis with dealers, some were operated as independent units, and some were on contract with the producers' association.

The Cleveland area had the greatest variety of arrangements for a single market. Here the dealer-controlled truck predominated. The truckers had, however, made a generally good impression upon the producer. One producer regarded his hauler as "just a trucker" and two others reported little contact. The remainder expressed very definite approval of the trucker's attitude and regarded him as wholly friendly to their interests.

In the area going into the Columbus market there was a great deal of uncertainty on the part of some producers as to how the trucker was employed. The producers differed in their opinions as to the attitude of their trucker toward the association. Some said it was friendly, several thought it neutral, and one producer said his trucker was critical of the association. With one exception, these producers regarded the trucker as having a very favorable attitude toward the producer. There was one complaint regarding service. This farmer reported that his trucker hauled coal after the milk trip was made and that his cans came back with coal dust on them.

In the Dayton-Springfield area the hauling of members' milk is under complete control of the Miami Valley Cooperative Milk Producers' Association. A part of the members interviewed were not clear in their minds about the details of the trucker's arrangement with the association. These men, however, did report generally that the trucker had a very favorable attitude toward the association. This did not mean that he was not also concerned with the interests of the individual producer. With the exception of one or two minor complaints they also reported a very satisfactory attitude on his part toward the individual producers.

These interviews indicated that there exists a rather definitely fixed relationship between the producer and the milk trucker. This relationship has come about in a large measure because the truckers have generally tried to serve the producer well. Out of this relationship there has grown the feeling on the part of the hauler that he has a sort of vested interest in the route consisting of the good will that he has built up. He thinks of this as a sort of insurance that he can continue at existing hauling rates or be kept on if rates change.

Some truck routes have sold in Ohio for as much as four or five thousand dollars. This raises a very serious problem in milk marketing. If a trucker can afford to come in and pay five thousand dollars for a route he must expect to be able to charge rates that will permit him to amortize this cost over a reasonable length of time, and that means higher trucking rates than would otherwise be necessary. This situation is almost sure to develop where the truck routes are operated by commercial truckers and where producers are quite dependent upon a certain hauler for a market outlet. When there is association control and frequent letting of routes to the lowest bidder, there is little opportunity for the vested interest idea to develop.

THE PRODUCER AND THE BOARD OF HEALTH

The typical producer of market milk in Ohio today must satisfy two parties: the purchaser of his milk and the inspector who represents the board of health. If his product goes to a manufacturing plant, sometimes there is no inspection by a public authority, but in practically all cases the producer will be required to meet certain minimum standards of sanitation for the production and handling of his milk set up by the buyer.

The present widespread system of milk supervision in the interest of the public health began in Ohio about 35 years ago in the Cleveland area. At first it was bitterly resented, and some farmers threatened to throw the inspectors off their farms. In 1908 the inspection was extended to dealers, and plants were required to take out licenses.

The attitudes of farmers toward board of health requirements have changed materially, especially within the past 5 or 10 years. In the interviews of the various phases of this study farmers expressed opinions freely. It was a rare experience to find a farmer who now regards the supervision of sanitation as an unwarranted burden and a wholly unnecessary expense.

Most dairy farmers now believe that it is advisable and necessary to have some public supervision to ensure the housewife a safe milk supply in which she will have full confidence. Criticism of the present system of inspection fell pretty generally into three lines: (1) Many farmers expressed the opinion that too much emphasis is being placed upon details of building construction and milk handling methods that have no real significance in either cleanliness or safety of the milk. (2) Many of the farms visited were under inspection of more than one market and the farmers found that the requirements of the different inspectors not only did not coincide but were at times in actual conflict. They cannot see why a procedure that will produce clean and safe milk for one city will not do it for another. This situation tends to shake the confidence of farmers in the whole system. (3) A few farmers spoke of unpleasant personal relations with inspectors. Sometimes they charged ignorance or indifference on the part of the inspector. In some cases they claimed the

inspector concerned himself with matters, such as the selling plan, which they considered were not within his field. Most of these clashes were probably the result of tactlessness on the part of one or the other, or both.

An effort was made to collect data on the cost of meeting the sanitary requirements of the board of health. The data obtained are not adaptable to a statement in table form because of the wide range of experience in equipping the farm to meet inspection. Many of the farms had been partly or wholly equipped before the present operators came on them. Others had been prepared over a series of years as requirements had been stepped up. In some cases practically all the labor had been done by the farmer himself, in others by outside labor or on contract. It is not surprising, therefore, that producer estimates should range from $50 to $1,000 per farm.

It was believed that a more accurate estimate of the cost of preparing a farm for inspection at the present time might be obtained from the health departments of the cities in the area studied. Therefore, in addition to several interviews, a letter was addressed to the health departments in the following cities: Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Delaware, Mansfield, Springfield, and Toledo, asking for an estimate of what it would cost a farmer with ordinary farm buildings suitable for producing sour cream or feeding beef cattle to equip for 10 cows to meet the board of health requirements for fluid milk for that city. It was to be assumed that the ordinary work of preparation would be performed by the farmer at an estimated hour rate of 30 to 35 cents, and that skilled carpentry and cement laying would be done by tradesmen at the going rates for the area.

Careful, and in several instances, detailed, replies were received from all except one of these 10 markets. Five cities were somewhat bunched in the middle of the group. They were Cincinnati, Cleveland, Delaware, Springfield, and Toledo. In this group the estimates ranged from $150 to $300. The round figure that would most nearly represent the group is $250.

Of the remaining four, Columbus was highest with an estimate of total cost of approximately $600, divided into: barn floors, windows, and partitions, $250; and milk house, $350. Dr. O'Dell, Chief Food Inspector of the Columbus Department of Health, states that many of the milk houses were originally built too small. He also points out that building labor costs have increased greatly in recent years.

Barn construction for Akron was given on the basis of 16 cows instead of 10 as suggested. For a barn of this size just recently equipped, including a calf pen, the total cost for materials and labor was $469.80. This cost would appear to place Akron with Columbus well above the average of the five cities first mentioned.

The estimate given by C. D. McDonald of Akron for a milk house of cement block was $125 for materials. Labor was not included, and no estimate was made upon it. It was also estimated that if mechanical refrigeration were installed, the original cost for a three-can unit would be approximately $275 and the operating cost about $1.00 per month.

Doctor Turner, dairy inspector of Dayton, gave estimates on two farms recently prepared for that market. The first, for 13 cows, was: cement, $50; sand and gravel, $35; extra windows in barn, $20; stanchions, $100; milk house, $165; labor and paint on barn, $60—a total of $430. On the second farm the costs were: milk house, cement block 8 x 10, including tank, $75; cement for

stable, $26; sand and gravel, $11.55; 10 stanchions, $100; sanitary toilet, $34.50 —a total for building materials and equipment of $246.55. In this case the labor costs were not obtained.

Mansfield was the lowest of the nine, with an estimate of $100. The costs as itemized were as follows: milk parlor for 4 cows, $70; milk house (existing building reconstructed), $22; toilet and well, $8. This low estimate was due in large part to two items: first, the use of a milk parlor; and second, the use of a building already built for a milk house. The milk parlor is a section of the stable set off completely from the remainder, for use in milking only. For small farms, a four-cow parlor is usually recommended. Delaware accepts this arrangement also. These two cities are conforming to the United States Public Health Service standard ordinance. Buyers of milk for sale as cream to eastern cities say that the eastern inspectors are not inclined to accept the milk parlor as meeting fully the minimum standards. There is also some question as to its feasibility in herds running to 10 cows and over. The milk parlor evidently does materially reduce the original outlay in preparing for city inspection.

The foregoing discussion of the relation of the producer to the authorities controlling the safety of milk supply proves that here is an important economic angle. The farmer has come to accept inspection as an important economic angle and an essential part of the industry program. It involves a considerable initial expense to prepare a farm to be a part of a city milk supply. There is also an added cost to the producer in maintaining his premises to meet continuing inspection. In the near future there will be need of some frank conferences between producers and public health authorities to create a better understanding of mutual problems relating to sanitary controls.

HOW THE MARKETING PLAN AFFECTS THE PRODUCER

In the areas studied there is to be found the usual variety of marketing plans. As a rule, the term "marketing plan" comprises the procedure by which (a) the milk requirements for different usages are calculated, and (b) the prices are determined and the returns to individual producers are figured and paid.

In the areas involved in this study four distinct types of marketing plans are in use. They are: (1) flat price; (2) use classification or pool without base and surplus; (3) producer base and surplus without use classification or pooling; and (4) a combination of use classification or the pool with farmers' individual base and surplus.

The flat price plan needs little explanation. A single price is announced for the pay period for milk of a stated butterfat content and this price with the proper allowance for variation from the butterfat standard is paid for all milk delivered. All the producers delivering to manufacturing plants and a few selling to milk dealers were being paid on the flat price basis. The flat price may be computed by use of a formula, as under the Evaporated Milk Code, but when it is so determined it applies to all milk purchased. One plant applied premiums to producers for quality and quantity, but the starting point from which premiums applied was a flat price.

The use classification or pool plan is based upon a division of the milk into different classes according to the use to which it is put. Different prices are paid for the different classes. The reasoning back of this plan is that milk going into direct consumption as fresh milk has the highest value, fresh fluid

cream is next, and milk going into the manufacture of ice cream somewhat lower. That going into the manufacture of butter or cheese is lowest in the scale of market values.

Much confusion exists in the minds of some producers regarding use classification. The writer was asked on one farm visit in Stark County to take a pail and see whether he could milk four classes of milk from the same cow. It happens that in this particular market in a sample of 100 producers, of which this farmer was one, there was delivered during the year an excess over the dealers' requirements for fresh milk and cream of 1,400,000 pounds. These hundred farmers delivered 892,911 pounds, or almost two-thirds of this excess milk in the 5 months of April, May, June, July, and August. It is evident that the demand for fluid milk and cream could not expand to take up this increase in deliveries in the flush months. When milk is qualified for fresh consumption by city health authorities and an excess is produced over the dealers' needs, it is true that there is no difference in quality between that which is designated as Class I for fresh milk sales and that named Class III, for manufacturing.

The line of reasoning which brought farmers and milk dealers to agreement upon the use classification plan was about this: Producers were continuously meeting the argument by milk dealers that they could pay them a higher price if they would deliver only the amount each day that would be required to meet the fresh milk and cream demand. Since that could not be done, the dealer offered just enough above the price of the next competing user, which was some kind of a manufacturer, to get a constant supply. The farmer pointed all the time to the extremely wide margin going to the dealer on his street sales. The dealer maintained that he was paying more for that which he had to make into manufactured products than he could get out of it. By mutual agreement they finally came together on the so-called use classification or pool plan.

In this plan the dealers and the producers, either individually or on an organized basis, get together and agree upon a schedule of prices to apply to milk going into the various uses of the market. If the deal is an individual arrangement between a single dealer and his independent producers, it is left to the dealer to do the accounting and work out the composite price to be paid for all the milk received. If there is an agreement between a producers' association and the dealers of the market, the usages are checked by the pool auditor. The pool may be operated either on the basis of computing a pool price for each dealer based on his individual experience as to usages or for the market as a whole.

By way of illustration, an individual dealer pool would work out like this: Let us suppose that there are three milk dealers in a town. The producers and dealers have agreed in price conference that the prices shall be Class I, $2.50; Class II, $1.90; and Class III, $1.50. For the month of October their respective operations are as follows:

Dealer A:	75,000 lb.	Class I	@ $2.50	=	$1,875.00
	15,000 lb.	Class II	@ 1.90	=	285.00
	5,000 lb.	Class III	@ 1.50	=	75.00
	95,000 lb.				$2,235.00

A's purchases amounted to 95,000 pounds of milk, and at the prices agreed upon, its value was $2,235. This dealer would pay his producers the weighted average value, or $2.35 per hundred pounds (2,235 ÷ 95,000).

Dealer B:	60,000 lb.	Class I	@	$2.50 =	$1,500.00
	10,000 lb.	Class II	@	1.90 =	190.00
	25,000 lb.	Class III	@	1.50 =	375.00
	95,000 lb.				$2,065.00

B's purchases totaled 95,000 pounds also, but on the agreed prices the value in the usages to which this milk was put was $2,065. The weighted average value, or the producer price for B, is $2.17 (2,065 ÷ 95,000).

Dealer C:	40,000 lb.	Class I	@	$2.50 =	$1,000.00
	4,000 lb.	Class II	@	1.90 =	95.00
	50,000 lb.	Class III	@	1.50 =	750.00
	95,000 lb.				$1,845.00

Dealer C has much smaller outlets for milk in Classes I and II, but he purchases the same number of pounds for the month. His 95,000 pounds have a total value of $1,845, or an average weighted value of $1.94 (1,845 ÷ 95,000).

Here are three dealers each handling milk in three usages but in different proportions. They are all buying milk in the same area, and under the same sanitary inspection. The farmers who happened to be fortunate enough to sell to dealer A received for this month $2.35; those selling to dealer C received $1.94 per hundred pounds.

A difference as wide as 41 cents between two dealers buying in the same area is almost certain to cause disturbances. In the first place, dealer A will object to paying a price as high above C as this. He will be tempted to try in some way to get himself on a price closer to dealer B, say around $2.20. It will be noted that A has only 5,000 pounds of Class III milk. This is a very close margin, and he will probably decide that he needs a few more producers. If he does, he is in a splendid position to take the best producers away from dealer C because of his marked advantage in price.

It is evident from this illustration that there are difficulties to be encountered in the operation of the use classification plan if it is done on the basis of individual dealer pools. More specific reference will be made later to this aspect of marketing procedure in connection with the facts disclosed in the study of Medina County producers.

If these three dealers had been the purchasers of all the milk in a small market and there had been a market-wide pool, the results would have been different. All purchases and all sales would have been run through a single pooling operation to arrive at the market pool price, and all producers would have been paid this price. The pooling operation would then have been like this:

Class I	— 175,000 lb.		@	$2.50 =	$4,375.00
Class II	— 30,000 lb.		@	1.90 =	570.00
Class III	— 80,000 lb.		@	1.50 =	1,200.00
	285,000 lb.				$6,145.00

The market pool price for the entire supply would be computed by dividing 6,145 by 285,000. The result is $2.156 per hundred pounds. A complication in paying producers arises here which requires some additional marketing machinery. If all the milk purchased by the three dealers came from the mem-

bers of one producers' cooperative association, the simplest procedure would be for each dealer to pay the full value of milk used to the association. On this plan, A would pay $2,235; B, $2,065; and C, $1,845. The association would then pay each farmer for the milk he delivered at the rate of $2.156 per hundredweight, less the deduction for the expense of operating the pool.

The usual procedure, however, is for each dealer to pay his own producers. In this case, if dealer A were to pay his farmers $2.156 per hundredweight, or the market pool price (95,000 × $2.156 = $2,048.20), he would still have failed to pay the full value of his purchases by $186.80, for the true value of his milk as used was shown to be $2,235. With dealer C, there is a similar maladjustment, but in the opposite direction. The actual usage value of the 95,000 pounds going through C's plant was $1,845, but on the market pool price he would pay his producers $2,048.20, the same as dealer A and dealer B. This is $203.20 too much. It is, therefore, obvious that unless there is a provision for paying producers from a central agency, there must be an equalizing or clearinghouse arrangement to make the plan equitable to all dealers concerned. This is done by having an equalization fund operated either by the producers' association or by some other agency created for this purpose, such as the Stark County Milk Marketing Board or the Cincinnati Pooling Association.

Both the individual dealer pool and the association or market pool are subject to certain abuses. There have been some instances where dealers have announced classification prices but have evidently not paid on an actual audit of milk usages. In individual dealer pools it is very unusual for two dealers to come out with exactly the same pool price in any one pay period. In one of the markets studied where dealers were announcing class prices, the four leading dealers operating what were alleged to be dealer pools came out with exactly the same prices for almost all of the 48 consecutive pay periods, an obvious manipulation of the classification.

The market or association pool also presents its difficulties. The greatest, from the operating standpoint, is the collection of pool balances due the equalization fund. Many dealers seem to feel that when they have paid to their producers the announced pool price for the market, their milk has been paid for. To follow up with an additional payment to the equalization fund which will eventually be paid out to their competitors in the equalizing operation is a hard dose of market economics for them to take. The result is a tendency on the part of small dealers who have a large percentage of Class I and II business to withdraw from the market pool and try to buy their milk at a price somewhere between its classification value and the market pool price.

The third plan listed is the base and surplus plan without use classification. This plan was in use in the Columbus area at the time the survey was made. The line of reasoning under this plan is that the fresh milk and cream sales of the market should be apportioned among the producers on the basis of each one's ability to produce milk in the months when the supplies coming into the market are lowest. Each farmer is assigned a base to be in effect for 1 year, computed on his deliveries during the 4 low months of market receipts.

In the beginning of this plan, dealers were asked to carry enough producers that the total of their assigned daily bases would be approximately 10 or 15 per cent greater than the dealer's estimate of his fresh milk and cream sales. In price conference between producers and dealers a price is bargained for base milk and for excess over base, or surplus. The producer receives the base price for all the milk delivered within this assigned amount and excess price for his excess, without regard to the actual experiences in usage by the dealer.

This plan has the advantage of being simple as to the matter of dealer accounting and payment to the producer. There is no necessity for a clearing-house or equalization fund. The disadvantage of the plan lies in the fact that it is impossible to operate it so that all dealers are paying the same price for milk going into identical uses. The dealer takes the number of producers that he thinks he will need to meet his requirements. If his sales decline and his producers deliver practically all their assigned base milk, he will be buying more base milk at the higher price than he can use in his fresh milk and cream outlets and he will be at a disadvantage compared with other dealers. If, on the other hand, he keeps his number of shippers down so that his total of assigned base is low compared with his sales, and his business improves, he can fill his bottles from excess over base delivered by his shippers and have his entire supply at a price substantially lower than his competitor who is properly based.

There is another disadvantage in this plan from the standpoint of market operation. It tends to create a condition of rigidity in the market. A new producer cannot enter the market as a base shipper unless there is a dealer ready to take on additional base milk. If an overbased dealer insists upon dropping some of his base shippers, it is sometimes impossible for the association or control board to find another dealer who will take them on. The dealer who is underbased but has enough of both base and excess to meet his requirements never wants to take on any more producers. Many producers in the Columbus market area are convinced that this plan is not flexible enough to stand the pressure of such rapidly changing conditions as are now being faced.

A plan is also in use in the Columbus market known as the "75-25 plan." In this plan the dealer agrees to buy the producer's entire output on a basis of paying him base price for 75 per cent of it and excess price for the remaining 25 per cent. This is neither a use classification nor a true base and surplus plan. It is simply a flat price arrived at by a formula that has nothing to do with the dealer's actual experience. The result is that it adds to the variety of prices being paid for milk and causes additional confusion in the market.

The last of the plans given is the combination of the use classification as a basis of pricing milk to the buyers with the producer base and surplus plan as a means of distributing the values of all milk marketed among the producers. It is a more complicated plan than any of the three just described. It has the virtue of bringing about the pricing of milk to dealers on an equitable basis and at the same time providing a certain measure of reward for the producer who will go to the trouble and added expense of producing a fairly regular amount of milk from month to month.

As a rule, in the years covered by this study, the bases assigned to all producers totaled an amount greater than the fresh milk and cream requirements of the market. When this condition exists it is customary to make a pool of the base milk delivered. In this pool there will be some excess of base receipts over the requirements for fresh milk and cream sales. This is designated as Class III milk within the base. The surplus or excess of deliveries by producers over assigned base is generally priced the same as Class III within the base. The more of Class III milk there is within the base pool, the nearer the base price will be to the surplus or excess price.

This combination plan was in use in Cincinnati, Dayton, Stark County, and Akron markets at the time of the study. In details the plans differ considerably in these markets, and some of these differences will be stressed in the discussion by markets, later.

In general, the greatest drawback to this plan is that it is somewhat complicated and that many producers do not understand it. It draws the criticism of those who do not believe in classification of milk, as well as those who do not favor the division of each farmer's milk into base and surplus or excess.

Dealers in general are more favorably disposed to a straight classification or pooling plan without base and surplus than to the combination plan. This attitude is due in part to the fact that when prices for manufacturing milk fall to a point that will not return butterfat value and pay transportation, many farmers will withhold their surplus from the city market channels and send it to local cheese factories or convert it into butterfat on the farm and feed the skim to livestock and poultry.

The foregoing description of plans in use has been given as a background for the discussion of the individual producer's interest in the market plan. Different producers are affected differently by the market plan. If there is to be a comparison, it will be necessary to agree upon a measure. All factors considered, it would seem that the true measure of value in a plan is the actual return which a producer receives for all the milk produced and put through the market in a single year. It is necessary to take a full year into the calculations to avoid the influence of certain variables on monthly returns.

It is generally recognized that it costs more to produce milk in even amounts from month to month than to produce much in the season of good pastures and little in the periods of higher feed costs. It is this fact that would appear to justify the use of the base and surplus plan. This fundamental principle must be taken into account when comparing the average returns for all milk sold during a year.

A great many farmers interviewed expressed dissatisfaction with the market plan. The greatest amount of criticism was directed toward the base and surplus plan. Many of those who were most severe in condemnation of this plan were producers with a very uneven record of production. The base-surplus plan is nothing more nor less than a means of distributing the total value of all milk sold among the producers. It does this on a different basis from that of a straight pool, assuming a definite and fixed value for the milk delivered into a market for a certain year. If the base and surplus plan is in effect, this value will be paid out so that the farmers with the more even production will receive relatively more than they would under a straight pool. This means, of course, that those of the widest fluctuation in production from month to month would receive a correspondingly lower average return on the base and surplus than on either the pool or flat price plan if the milk were sold at the same total value in all three cases.

The question, therefore, narrows down to one of marketing policy. Shall the market plan reward the producer of an even flow of milk to the market at the expense of the farmer with very high production in the summer months and very low in the fall and winter?

FACTORS AFFECTING AVERAGE YEARLY RETURNS OF PRODUCERS IN MEDINA COUNTY

The study of farm account records from Medina County brought out in clear relief the various factors that influence the producer's average return per hundred pounds for all milk sold. It was shown that the marketing plan was one of the most important of these factors.

These data bring out clearly the wide variation in the returns to producers in the same area. The farmers keeping these account books set down each month the pounds of milk sold, the butterfat content, the check received after hauling charges were deducted, and the hauling rate per hundred pounds. Information as to the butterfat differential was obtained from the important dealers in the various markets.

With these data available it is only a matter of some simple arithmetic to arrive at the average returns per hundred pounds for the milk sold during the year at the butterfat content actually delivered. In table 1, average returns are given for 1936 and for 1937. The returns for the 12 pay periods of the year were added, and this figure was divided by the total number of pounds of milk sold for the year. The results are given in columns 4 and 5, as average

TABLE 1.—Returns to producers from sale of whole milk, per hundredweight, Medina County farm account records, 1936 and 1937

Producer No.	Range in per cent of butterfat		Average return at farm on actual butterfat content		Average return at farm adjusted to 3.5 per cent butterfat		Hauling per cwt.	Average return at market adjusted to 3.5 per cent butterfat	
	1936	1937	1936	1937	1936	1937		1936	1937
			Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
1	3.4 -4.1	3.5 -3.9	2.09	2.32	2.04	2.28	0.25	2.29	2.53
2	3.3 -3.9	3.4 -3.8	1.92	2.05	1.87	2.02	.20	2.07	2.22
3	3.1 -3.7	3.2 -3.7	1.80	1.97	1.86	2.01	.20	2.06	2.21
4	4.9 -5.7	5.3 -5.6	2.55	2.73	1.86	2.01	.20	2.06	2.21
5	3.8 -4.8	.....	2.11	.....	1.83	.....	.25	2.08	.....
6	4.2 -5.1	4.6 -4.9	2.22	2.43	1.83	1.94	.20	2.03	2.14
7	3.0 -3.9	3.2 -4.0	1.75	1.97	1.81	1.94	.26	2.07	2.20
8	3.0 -3.6	.....	1.75	.....	1.81	.....	.20	2.01	.....
9	3.2 -3.7	3.1 -3.6	1.79	1.97	1.85	2.03	.20	2.05	2.23
10	3.6 -4.4	3.9 -4.3	1.97	2.15	1.81	1.94	.20	2.01	2.14
11	3.7 -4.7	3.9 -4.9	2.01	2.23	1.78	1.90	.25	2.03	2.15
12	3.1 -3.7	3.1 -3.8	1.73	1.97	1.79	1.97	.25	2.04	2.22
13	3.4 -3.9	3.6 -4.2	1.84	2.06	1.78	1.93	.25	2.03	2.18
14	3.2 -3.7	3.4 -3.8	1.77	1.90	1.77	1.90	.25	2.02	2.15
15	3.1 -3.7	3.2 -4.0	1.70	1.89	1.77	1.92	.25	2.02	2.17
16	3.1 -3.8	3.3 -3.5	1.70	1.84	1.74	1.87	.25	1.99	2.12
17	3.3 -3.7	3.3 -3.6	1.70	1.79	1.71	1.83	.25	1.96	2.08
18	5.1 -5.5	5.2 -5.5	2.35	2.67	1.69	1.98	.25	1.94	2.23
19	.....	3.4 -4.4	.....	2.09	.....	1.96	.25	.....	2.21
20	.....	3.8 -4.1	.....	2.05	.....	1.88	.25	.....	2.13
21	3.4 -3.95	3.45-4.0	1.78	2.01	1.75	1.97	.23	1.98	2.20
22	3.1 -3.45	3.05-3.55	1.63	1.78	1.69	1.83	.24	1.93	2.07
23	4.45-5.25	4.6 -5.25	2.17	2.38	1.68	1.87	.24	1.92	2.11
24	4.4 -5.75	5.0 -6.05	2.22	2.66	1.67	1.92	.27	1.94	2.19
25	4.25-5.45	4.65-5.25	3.02	3.23	2.53	2.60	.25	2.78	2.85
26	3.35-3.75	3.45-3.65	1.62	1.92	1.63	1.86	.10	1.73	1.96
27	.....	3.2 -3.9	.....	1.81	.....	1.80	.23	.....	2.03
28	.....	4.4 -5.15	.....	2.21	.....	1.78	.23	.....	2.01
29	.....	5.1 -6.1	.....	2.63	.....	1.89	.23	.....	2.12
30	4.55-5.85	4.6 -5.75	2.13	2.25	1.57	1.77	.29	1.86	2.18
31	4.2 -4.55	4.05-4.6	1.90	2.10	1.56	1.77	.27	1.83	2.04
32	3.5 -4.0	3.55-4.05	1.66	1.80	1.56	1.70	.27	1.74	1.85
33	3.0 -3.45	3.05-3.6	1.71	1.95	1.83	2.01	.26	2.09	2.27
34	3.45-3.65	3.2 -3.55	1.80	1.92	1.79	1.99	.20	1.99	2.19
35	.....	3.6 -4.7	.....	2.22	.....	2.03	.25	.....	2.31
36	.....	4.6 -5.15	.....	2.58	.....	2.01	.25	.....	2.26
37	3.2 -4.2	3.6 -4.25	1.94	2.11	1.86	1.88	.25	2.11	2.13
38	3.0 -3.6	3.1 -3.7	1.57	1.77	1.65	1.85	.25	1.90	2.10
39	3.75-4.45	3.95-5.0	2.02	2.15	1.72	1.85	.25	1.97	2.10
40	3.5 -4.3	3.65-4.4	1.91	2.08	1.76	1.90	.25	2.01	2.15

TABLE 1.—Returns to producers from sale of whole milk, per hundredweight, Medina County farm account records, 1936 and 1937—continued

Producer No.	Range in per cent of butterfat		Average return at farm on actual butterfat content		Average return at farm adjusted to 3.5 per cent butterfat		Hauling per cwt.	Average return at market adjusted to 3.5 per cent butterfat	
	1936	1937	1936	1937	1936	1937		1936	1937
			Dol.	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*	*Dol.*
41	4.8 -5.75	5.05-6.1	2.30	2.49	1.84	1.82	0.25	2.09	2.07
42	3.4 -4.0	3.0 -3.5	1.75	1.74	1.73	1.86	.25	1.98	2.11
43	4.5 -5.95	.....	2.33	.....	1.66	.....	.28	1.94	.....
44	4.0 -5.0	4.3 -5.15	2.22	2.34	1.80	1.90	.20	2.00	2.10
45	4.8 -5.8	.....	2.48	.....	1.84	.....	.27	2.11	.....
46	.....	3.7 -4.4	.....	2.15	.....	1.91	.25	.....	2.16
47	4.25-5.45	.....	2.16	.....	1.76	.....	.25	2.01	.....
48	.....	3.5 -3.8	.....	1.99	.....	1.92	.25	.....	2.17
49	3.3 -3.5	3.3 -3.7	1.71	2.01	1.76	2.00	.25	2.25	2.01
50	4.5 -5.8	4.7 -5.5	2.44	2.38	1.81	1.83	.25	2.06	2.08
51	3.5 -5.2	4.6 -5.3	2.07	2.50	1.77	1.97	.25	2.02	2.22
52	3.3 -3.7	3.3 -3.6	1.50	1.76	1.51	1.77	.18	1.69	1.95
53	5.0 -5.6	5.0 -6.2	2.58	2.92	1.90	2.16	.20	2.10	2.36
54	3.0 -3.9	.....	1.69	.....	1.63	.....	.18	1.81	.....
55	4.35-5.4	4.35-4.85	2.15	2.48	1.68	2.06	.22	1.90	2.28
56	3.75-4.5	3.5 -4.65	1.85	2.30	1.63	2.17	.22	1.85	2.39
57	4.25-4.8	4.05-4.75	2.06	2.54	1.74	2.18	.19	1.93	2.37
58	3.75-4.2	.....	1.87	.....	1.70	.....	.21	1.91	.....
59	3.4 -4.05	.....	1.60	.....	1.57	.....	.20	1.77	.....
60	4.2 -5.5	4.0 -4.9	1.81	2.18	1.35	1.85	.20	1.55	2.05
61	3.5 -4.5	3.3 -4.2	1.80	2.00	1.64	1.82	.29	1.93	2.11
62	3.2 -3.9	.....	1.70	.....	1.67	.....	.25	1.92	.....
63	3.95-6.75	3.8 -4.35	1.94	1.87	1.53	1.71	.15	1.68	1.86
64	5.2 -5.85	5.0 -6.25	2.31	2.37	1.52	1.72	.15	1.67	1.87
65	3.55-4.05	3.5 -4.05	1.66	1.78	1.56	1.69	.15	1.71	1.84
66	3.3 -4.1	3.7 -4.8	1.84	2.22	1.74	1.97	.....	.....	.....
67	2.9 -3.6	.....	1.07	.....	1.17	.....	.18	1.35	.....

returns per hundredweight at the farm, actual test. Purely from a farm record viewpoint this is the most significant figure. This is the amount of money received per hundred pounds for all the milk sold after hauling charges had been deducted. It represents the contribution of the dairy enterprise to the total farm income, and this is what is meant by returns for milk sold. It is not a price of milk. The price is the amount of money that a given dealer or group of dealers offers on a certain day for 100 pounds of milk of a specified butterfat content and sanitary standard delivered at a designated point.

It may be well to point out here that it is not possible to compute the average returns per hundred pounds of milk for a year by taking the quoted prices for each of the 12 months, adding them, and dividing the sum by 12. This would be a simple average of monthly prices; it would not be a true average return per hundred pounds of all milk sold.

Reference to table 1 shows that in the group of 67 farmers whose returns were studied there was a range in farm returns per hundred pounds of from $1.07 to $3.02 in 1936 and from $1.74 to $3.23 in 1937. A careful study of the conditions surrounding these 67 producers reveals that there are seven distinct factors at play in bringing about the variation to be found in table 1. They are: (1) kind of market into which whole milk was sold; (2) butterfat content of milk sold; (3) prevailing market prices; (4) transportation costs; (5)

the marketing plan; (6) seasonality of sales; and (7) financial responsibility of buyer. No attempt is made in the above listing to indicate relative importance of these factors.

A discussion of their significance follows:

Kind of market.—The kind of market into which a farmer is selling has much to do with the returns he may expect. There are three city markets represented here and two manufacturing plants. In addition, the larger city markets afford an opportunity for the sale of special premium milks, such as Certified, Golden Guernsey, and Jersey Creamline.

As a general rule farmers selling to city milk dealers can expect somewhat higher average returns than can be had through sale to a manufacturing outlet. This fact is illustrated in the case of producers 30, 31, 32, 63, 64, 65, and 67. The purchasers of the milk from these farms are engaged mainly in the manufacture of milk products rather than in the sale of fresh milk and cream.

Only a few farmers selling into a city market can hope to enjoy a premium milk market. Producer No. 25 is an example of this. He enjoys a special breed milk market. It will be noted that his milk tests high in butterfat, but this alone does not account for all the advantage in average returns. Producer No. 24 had a higher average test both years but a very much lower return per hundred pounds.

Butterfat content.—In the sample of 67 farmers it will be noted that the range of butterfat content was from 2.9 per cent to 6.75 per cent. This is a wide variation; the highest test milk carried more than twice as much butterfat as the lowest. Approximately one-third of the herds never exceed a test of 4 per cent. Slightly less than one-third of them reach or exceed a test of 5 per cent at some month during the year.

The factor of butterfat content is one that is wholly within the control of the producer. He must decide whether he is going to market a milk of high or low butterfat content. There may be instances where a dealer will express a preference for a milk of higher butterfat content, but as a rule there has been little or no financial inducement offered in Ohio markets for milk of high butterfat content.

It must not be assumed, however, that the variations in average returns due to differences in butterfat content are an exact measure of the net returns to the dairy enterprise. It is a well recognized fact that as a general rule it costs more to produce a hundred pounds of milk of 5 per cent butterfat content than of 3 per cent butterfat.

Prevailing market prices.—The quoted prices of the market into which the milk was sold were a factor in the average returns. It is obvious that not all of the 25 different buyers would be offering the same price. Market prices as quoted by dealers are sometimes misleading because the basis of quotation differs between dealers. One case was found in the sample from the Toledo area where the quoted price was increased by 15 cents per hundred but the base test on which the milk was bought was raised from 3.5 per cent butterfat to 4 per cent. The butterfat differential was 4 cents per point at that time. The result was a decrease of 5 cents per hundred pounds in the producer's actual returns on the basis of an apparent 15-cent increase in price.

In the quotation of prices it is a common practice to omit announcement of the butterfat differential. In fairness to the producer this should always be made a part of the price quotation.

Transportation charges.—When considering the advantage of any one market over another, the transportation charges to be deducted from the quoted price are of vital importance. In the Medina County sample the range was from 10 cents to 29 cents. On Route 42 there were several farms paying 30 cents and a few going into Cincinnati at 40 cents. In the Stark County sample transportation ranged from 10 cents to 25 cents and averaged just under 17 cents per hundred.

These trucking charges are a part of the farmer's cost of marketing milk. The quoted price is always announced to apply at the dealer's platform, and as a result, the significance of the trucking charge is sometimes overlooked. This is a factor over which the individual farmer acting alone can have little control. He cannot move his farm closer to a market, and in very few instances can he consider hauling his own milk to the plant. The cooperative association can, however, often do much to reduce hauling costs.

As a rule, the quoted price is highest in the market to which there is the greatest transportation charge. This is illustrated in farms Nos. 26 and 30 of table 1. The higher return of farm No. 30, f. o. b. the market, was lost in higher transportation costs, and farm No. 26 received a higher net return at the farm on a 3.5 per cent basis than did farm No. 30.

Marketing plan.—The marketing plan has to do with the manner in which the milk is purchased, the accounting as to its usages, and the payment to producers. The 67 farms in the Medina County group represent a variety of marketing plans, and the other groups increase this number by several more. The effect of the different plans on the net returns is not clearly shown in table 1 because there is no column of returns from which all other variables have been eliminated. The column headed "average returns at market adjusted to 3.5 per cent butterfat" is influenced largely by market plans, but it also includes all the other variables except butterfat content and transportation.

Seasonality of production.—This factor is very closely related to the one just discussed. Seasonality of production is an accepted fact in milk production. Farms vary greatly in this respect. The market plan may be so designed that it places a premium upon even production, and when it does it widens the variation in returns due to seasonality. Whatever the market plan may be, however, there is still a factor of variability in that prices are seasonal and the farm that markets more milk in the months when prices are up and less in the flush months will have higher average returns for the year.

Financial responsibility of buyer.—This is a factor that some may argue should not be included. Fortunately it is becoming of less importance under the prevailing marketing procedures in Ohio. Of the several hundred farmers involved in this study, a very small number have suffered recent losses through defaulting milk dealers. A farmer pays his feed bills and other expenses with the money actually received for his milk. When he loses a month or two of his deliveries before he discovers his predicament, it means just so much less in his actual returns for the year. The extremely low return of $1.07 for producer No. 67 in 1936 in table 1 was due to his actually receiving pay for only 10 months' deliveries. This is a factor of risk that has been very largely eliminated through sound producer organization and increasing reliability of milk dealers in recent years.

These comments on the Medina County farm records have been made in terms of the returns to the producer for milk at actual test at the farm. It is

useful for purposes of comparing offers from different dealers to convert these actual returns to the basis of 3.5 per cent butterfat, which is the base test upon which practically all milk is purchased in northern Ohio.

The procedure is not difficult but it is somewhat tedious. It is necessary to apply the butterfat differential to the actual test price each pay period and convert it to the basis of milk of 3.5 per cent butterfat. The deliveries for each month must then be multiplied by the adjusted price for each month, and the resulting values added together to obtain an adjusted value for all milk on a 3.5 per cent basis. This value is then divided by the total number of hundredweight delivered for the year to obtain the weighted average return adjusted to a 3.5 per cent basis. The computation for each month is necessary in order to obtain a weighted average.

For the return at the market it is only necessary to add the hauling charge to the farm return at 3.5 per cent unless there has been a change of trucking charge during the year. In that event it would be necessary to compute it by months in order to weight the average properly.

It will be noted that the lowest range of variation is in the column of average farm returns adjusted to 3.5 per cent. The last column, giving the return for 3.5 per cent milk at the market, contains the variable trucking costs, which are eliminated from the adjusted farm returns.

ANALYSIS OF ONE HUNDRED PRODUCERS' RETURNS IN STARK COUNTY

A more careful analysis of the effect of the marketing plan upon producer returns was made at the request of the board of directors of the Stark County Milk Producers' Association. This association had been operating upon a combined market pool and base-surplus plan in its present form since October 1934. This study was started in the spring of 1937, and when concluded, it involved the years 1932-1937, inclusive. The analysis of the effects of base and surplus included only the years 1935, 1936, and 1937.

The study consisted of a thorough analysis of the experience of 100 producers selected by taking every tenth regular producer from the records of the Stark County Milk Marketing Board. The sample, therefore, represented approximately 10 per cent of the active shippers in the market. As a result of this random selection, the sample can be considered as representative also with respect to size of operation, type of farming, and geographical location.

The method of computing average returns per hundred pounds is the same as in the Medina County study, with the exception that in this case the computations are all on milk adjusted to 3.5 per cent butterfat, f. o. b. the market. This method eliminates the butterfat and trucking variables and makes it possible to concentrate upon the effect upon the producer returns of the base and surplus plan.

Table 2 summarizes the result of this study for the 100 producers over the 3 years. In order to understand the various factors affecting returns it will be necessary to refer to this table frequently. Each year the producers were arranged in order from the highest average return to the lowest, and the ranking is shown for each of the 3 years. The producers are arranged in the table in the order in which their average returns happened to fall for the year of 1935. For example, producer No. 1 had the highest average return, $1.84 per

hundredweight, for all milk sold in 1935, was fortieth with $1.79 in 1936, and sixty-eighth, with $1.96 in 1937. In the last column of the table the change in daily base from January 1935 to December 1937 is shown for each producer.

A careful study of this table discloses some interesting facts about the distribution of the producers in the array. The difference in average returns between the highest and lowest for the 3 years was as follows: 1935: highest $1.84, lowest $1.42, difference 42 cents; 1936: highest $1.89, lowest $1.62, difference 27 cents; 1937: highest $2.13, lowest $1.83, difference 30 cents. If we take the 100 producers each of the 3 years and strike a simple average, we have $1.63 per hundredweight for 1935, $1.76 for 1936, and $1.98 for 1937. If we divide the hundred producers roughly into thirds we come out with the following results:

The difference in returns here shown is due to the varying amounts of base and excess delivered and the spread in price between base milk and excess milk. This analysis shows that the middle group has a relatively narrow range of difference, that the top group is slightly more variable, and that the lower group has a much wider range of variation. It is significant that the producers at the extreme ends of these arrays show the greatest variations in their average yearly returns. It would appear that a high degree of conformity to the base and surplus plan brings substantial reward, that a low degree brings heavy penalty.

The most significant point in all this array of figures is that one farmer in the sample of 100 was getting as much as 42 cents a hundred pounds less in 1935 for his total sales of milk than his neighbor because of poor performance under the plan. Producers are concerned as to whether there is anything they can do about it. The association directors are also concerned as to whether an injustice from a marketing standpoint is being imposed upon the producer with the extremely low average returns per hundred pounds.

If the market were being operated as a straight market pool, the pool price would be approximately the same as the average given for this sample of 100, or somewhere within the range of group B, the middle one-third, in table 3. All those who received less than the average because they marketed large amounts of excess would have their returns increased at the expense of the more even producers who received more than the average. Thus far the directors of the association have not felt that it would be sound marketing policy to abandon the base and surplus plan, and in this position they have been supported by a substantial majority when the question was put to a vote of the membership.

There is another significant aspect of this sorting of producers. It is important to find out how fixed the order proves to be. It is safe to assume that all the producers involved are desirous of receiving the largest possible average returns for all the milk marketed. These 100 men for the years 1935, 1936, and 1937 have all aimed at this goal. Table 2 arranges them in the order in which they finished the race each of the 3 years.

Where the sample was studied on the basis of the grouping in table 3, it was found that 35 of the hundred remained for the 3 years in the same group in which they started, 31 moved in 1936 or 1937 to a position one group higher, 22 moved to a position one group lower, 5 moved from the low one-third group to the high, and 7 dropped from the high group to the low. This analysis indicates that on the whole there is a fairly well established arrangement, but there are to be found in this sample of 100 producers about 10 to 15 per cent whose

TABLE 2.—Yearly returns to producers for 1935, 1936, and 1937, Stark County sample

Producer No.	1935		1936		1937		Change in base 1935–1937
	Rank	Return per cwt.	Rank	Return per cwt.	Rank	Return per cwt.	
		Dol.		*Dol.*		*Dol.*	*Lb.*
1	1	1.84	40	1.79	68	1.96	+37
2	2	1.84	13	1.83	31	2.03	+37
3	3	1.83	4	1.88	19	2.06	− 6
4	4	1.83	1	1.89	2	2.12	.....
5	5	1.83	19	1.82	94	1.89	+ 2
6	6	1.82	2	1.88	16	2.07	−19
7	7	1.82	3	1.88	4	2.11	+ 2
8	8	1.82	30	1.80	14	2.07	+11
9	9	1.82	16	1.83	18	2.06	+31
10	10	1.81	10	1.84	80	1.93	+13
11	11	1.81	23	1.81	37	2.01	+40
12	12	1.80	6	1.87	1	2.13	+ 7
13	13	1.80	32	1.80	3	2.11	+31
14	14	1.80	26	1.81	10	2.08	+28
15	15	1.80	22	1.81	78	1.94	+35
16	16	1.79	58	1.76	55	1.98	+61
17	17	1.79	88	1.71	72	1.95	+60
18	18	1.79	35	1.79	17	2.07	+63
19	19	1.79	28	1.81	42	2.01	− 7
20	20	1.79	11	1.84	5	2.10	− 1
21	21	1.79	5	1.88	7	2.09	+ 3
22	22	1.77	92	1.69	79	1.94	+51
23	23	1.77	44	1.79	26	2.03	+ 7
24	24	1.77	21	1.82	23	2.05	+13
25	25	1.77	7	1.85	11	2.08	+31
26	26	1.76	34	1.80	74	1.95	+20
27	27	1.76	27	1.81	45	2.01	+ 7
28	28	1.76	14	1.83	25	2.04	− 4
29	29	1.75	51	1.77	15	2.07	+ 5
30	30	1.74	29	1.80	34	2.02	+32
31	31	1.73	39	1.79	27	2.03	+24
32	32	1.73	20	1.82	47	2.00	+ 7
33	33	1.73	82	1.73	22	2.05	+32
34	34	1.73	12	1.84	46	2.00	+24
35	35	1.72	54	1.77	29	2.03	+15
36	36	1.72	50	1.78	21	2.05	+30
37	37	1.72	67	1.75	96	1.86	+ 9
38	38	1.71	52	1.77	81	1.93	+ 4
39	39	1.71	78	1.73	93	1.89	+13
40	40	1.71	31	1.80	13	2.07	+ 4
41	41	1.70	53	1.77	76	1.95	+21
42	42	1.70	15	1.83	54	1.99	+14
43	43	1.69	93	1.69	33	2.03	+ 4
44	44	1.69	64	1.75	73	1.95	+46
45	45	1.69	25	1.81	6	2.09	+35
46	46	1.69	8	1.85	12	2.08	+34
47	47	1.68	56	1.77	67	1.97	− 1
48	48	1.68	77	1.73	41	2.01	+12
49	49	1.68	76	1.74	69	1.96	+ 7
50	50	1.68	37	1.79	77	1.95	+ 9

average returns fluctuate widely from year to year. This type is illustrated in the sample by the 12 who moved either from the top to the bottom, or from the bottom to the top groups.

This angle of the problem is in many respects the most important of all. Can the producer determine in advance whether he will gain or lose by the adoption of a certain marketing plan? Or does the evidence seem to indicate

TABLE 2.—Yearly returns to producers for 1935, 1936, and 1937, Stark County sample—continued

Producer No.	1935		1936		1937		Change in base 1935–1937
	Rank	Return per cwt.	Rank	Return per cwt.	Rank	Return per cwt.	
		Dol.		*Dol.*		*Dol.*	*Lb.*
51	51	1.68	18	1.82	57	1.98	+ 13
52	52	1.67	57	1.76	36	2.02	+ 6
53	53	1.67	43	1.79	60	1.98	.....
54	54	1.67	41	1.79	62	1.97	+ 1
55	55	1.67	68	1.75	50	1.99	+ 32
56	56	1.67	24	1.81	61	1.98	+ 9
57	57	1.66	85	1.72	83	1.93	+ 4
58	58	1.65	75	1.74	9	2.09	+ 10
59	59	1.65	62	1.75	90	1.92	− 7
60	60	1.64	17	1.83	8	2.09	+ 2
61	61	1.64	61	1.76	51	1.99	+ 31
62	62	1.64	81	1.73	35	2.02	+ 17
63	63	1.64	48	1.78	33	2.01	+ 23
64	64	1.63	65	1.75	52	1.99	+ 16
65	65	1.63	45	1.79	85	1.93	+ 4
66	66	1.63	97	1.68	98	1.85	+ 6
67	67	1.62	46	1.78	95	1.88	− 20
68	68	1.62	71	1.74	71	1.95	+ 26
69	69	1.62	73	1.74	43	2.01	+ 23
70	70	1.61	36	1.79	66	1.97	+ 1
71	71	1.60	72	1.74	27	2.03	+ 58
72	72	1.60	38	1.79	39	2.01	+ 65
73	73	1.60	42	1.79	91	1.92	− 8
74	74	1.60	55	1.77	82	1.93	− 10
75	75	1.59	83	1.73	44	2.01	+ 9
76	76	1.57	63	1.75	57	1.98	+ 43
77	77	1.57	79	1.73	63	1.97	+ 35
78	78	1.57	96	1.68	37	2.02	+ 22
79	79	1.56	60	1.76	70	1.96	+ 8
80	80	1.56	80	1.73	84	1.93	+ 9
81	81	1.56	91	1.70	75	1.95	+ 61
82	82	1.54	87	1.71	100	1.83	+ 37
83	83	1.53	69	1.74	49	2.00	+ 6
84	84	1.53	74	1.74	56	1.98	+ 42
85	85	1.52	90	1.70	65	1.97	+ 25
86	86	1.52	59	1.76	59	1.98	+ 33
87	87	1.51	47	1.78	32	2.03	+ 2
88	88	1.51	9	1.85	30	2.03	+ 13
89	89	1.50	100	1.62	97	1.85	+ 18
90	90	1.49	84	1.72	53	1.99	+ 34
91	91	1.49	98	1.68	88	1.92	+149
92	92	1.49	86	1.71	48	2.00	+ 41
93	93	1.49	33	1.80	20	2.06	+ 12
94	94	1.48	70	1.74	89	1.92	+ 42
95	95	1.47	66	1.75	92	1.91	+ 15
96	96	1.47	95	1.69	64	1.97	+ 66
97	97	1.46	49	1.78	24	2.05	− 1
98	98	1.43	99	1.65	86	1.93	+ 14
99	99	1.43	89	1.70	99	1.84	+ 37
100	100	1.42	94	1.69	87	1.93	+ 30

that he will be helpless when operating under it to determine whether he will be in the upper, the middle, or the lower group as to average returns for all milk sold? Inasmuch as these differences are due in large measure to the amount of excess milk delivered, the individual producer can control his position to some extent. His farm organization determines just how far it is profitable to carry even production.

There is a very obvious relationship between the average returns and the amount of excess milk over base delivered by the producer. This relationship is shown clearly in table 4, which compares the five high- and five low-return producers on this point.

TABLE 3.—Range in average returns to producers by groups

	1935		1936		1937	
	Range	Difference	Range	Difference	Range	Difference
	Dol.	*Ct.*	*Dol.*	*Ct.*	*Dol.*	*Ct.*
Group A (high one-third)	1.73- 1.84	11	1.80- 1.89	9	2.03- 2.13	10
Group B (middle one-third)	1.63- 1.73	10	1.75- 1.80	5	1.97- 2.03	6
Group C (low one-third)	1.42- 1.63	21	1.62- 1.75	13	1.83- 1.97	14
Total		42		27		30

TABLE 4.—Excess milk over base delivered by five producers with highest average returns and five producers with lowest average returns, 1935-1937

Year	Deliveries of five producers with high average returns	Deliveries of five producers with low average returns
	Lb.	*Lb.*
1935	2,665	83,480
1936	5,265	99,484
1937	7,804	119,575
Total	15,734	302,539

When the high 5 average returns in each of the 3 years, 1935, 1936, and 1937, were picked out and the names laid side by side, it was found that enough individuals had repeated their positions in the top 5 returns for 2 or more years that there were only 11 different individuals represented in the 15 records. Exactly the same relation worked out in the 15 producers with lowest average returns.

A composite analysis of the experience of these 11 producers with high average returns and the 11 with low average is given in table 5. These data are presented graphically in figure 3.

Some significant facts are brought out here concerning the behavior of these producers with respect to changes in amount of milk delivered, and also with respect to changes made by the association in assigned base. Both the high-return and the low-return groups were increasing total deliveries during the period. The low-return group increased 37.1 per cent, the high-return group, only 11.6 per cent. In 1935 the high-return producers delivered about 30 per cent more milk than the low-return group, but in 1937 they were less than 6 per cent above the low-return group. This relation shows that the high-return group, over this 3-year period, was more uniform in deliveries to the market than was the low-return group. These men were apparently producing nearer to their optimum capacity at the beginning of the period.

TABLE 5.—Summary of milk deliveries of 11 producers with high average returns and 11 producers with low average returns, 1935-1937

	Eleven producers with highest average returns			Eleven producers with lowest average returns		
	1935	1936	1937	1935	1936	1937
Total sales	525,277	564,557	586,361	405,419	473,559	555,699
Delivered excess	18,061	45,088	65,886	175,922	218,814	221,488
Delivered base	507,216	519,469	520,475	229,497	254,755	334,211
Per cent of sales delivered as base milk	96.6	92.0	88.8	56.6	53.8	60.0
Assigned base	539,105	541,314	555,702	235,213	258,702	347,975
Undelivered base	31,889	21,845	35,227	5,716	3,947	13,764
Delivered base	507,216	519,469	520,475	229,497	254,755	334,211
Per cent of assigned base delivered	94.1	96.0	93.7	97.6	98.5	96.0
Relation of assigned base to total sales, per cent.	102.6	95.9	94.8	58.0	54.6	62.6
Percentage increase of 1937 sales over 1935	.....	.....	11.6	.....	.....	37.1
Percentage increase of assigned base, 1937 over 1935	.....	.....	3.1	.....	.....	47.9

Changes in the assigned base between January 1935 and December 1937 are significant. The high-return group received an increase of only 3.1 per cent; the low-return group was increased 47.9 per cent, or 10 per cent more than their total deliveries increased. A casual examination might lead to the conclusion that this was a very serious abuse of the base plan. It must be noted, however, that these 11 low-return farms in 1935 had deliveries of 175,922 pounds of excess and only 5,716 pounds of undelivered base, whereas the 11 high-return farms delivered only 18,081 pounds of excess but had 31,889 pounds of undelivered base. In other words, it is evident that the low-return farms were substantially underbased in relation to the high-return group in 1935.

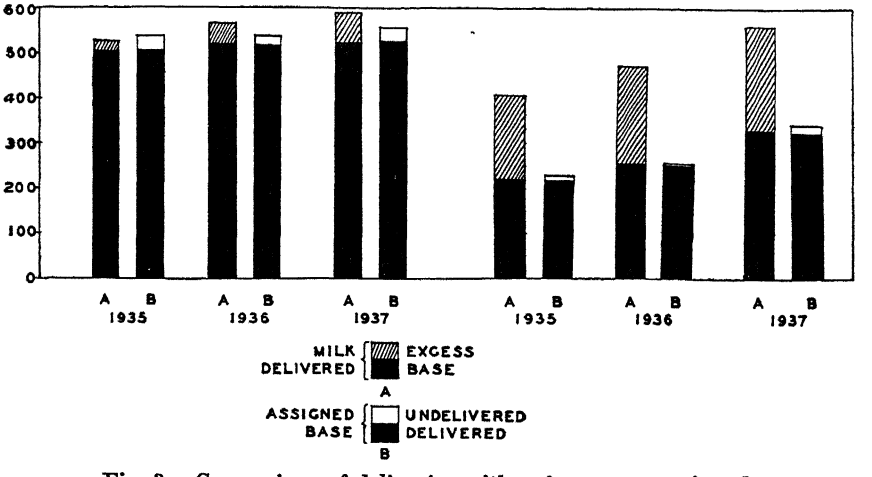

Fig. 3.—Comparison of deliveries with reference to assigned base of high-return and low-return producers

A reasonable conclusion on this point is that if the objective is to keep a fixed relation between total base assigned and market sales of fresh milk and cream, bases have been raised too much in the low-return group; but if the objective is to grant to all producers bases in line with their ability to deliver base milk, then the procedure was in keeping with the trend of production. It is doubtful whether all these 11 men in the low group could have been induced to stay with the base plan in 1936 and 1937 with a total of only 235,213 pounds of assigned base when they were delivering 473,559 and 555,699 pounds of milk in the respective years.

The real test of balance in this analysis is to be found in the relation of delivered to assigned base. The percentage of undelivered base was higher in the high-return group with 25 per cent heavier total deliveries and more even monthly distribution than in the low-return group.

The net result of the changes in assigned base has been to keep deliveries of base milk in about the same relation to assigned base in both groups. The low-return group delivered approximately 2½ per cent more of its assigned base than did the high-return group. It is significant that in 1937 after adjustments in assigned base had been made, the low-return group delivered 96 per cent of the base assigned to it, whereas the high-return group made deliveries of only 93.7 per cent of assigned base.

This association has obviously followed the policy of adjusting bases to the ability of producers to deliver assigned base. It has not made any serious attempt through the base and surplus plan to control total production of milk in the area.

In order to present some of the results of the analysis in terms of individual experiences of farmers in the sample, certain typical records have been selected from within the 11 producers with highest returns and the 11 with lowest returns in the 3 years.

To facilitate description, these producers will be designated by letter, and further identified by rank, so that the reader may refer to table 2 for data on average returns in terms of dollars per hundredweight.

Producer A (see fig. 4) was one of the 11 with high average returns. In the sample of 100, he was first in 1935, fortieth in 1936, and sixty-eighth in 1937. He operated a farm of approximately 200 acres in crops and 50 acres in pasture. He had barn capacity for 25 cows but was keeping only 14 in 1935. He had an assigned base of 88 pounds per day in 1935 and delivered practically no milk except his base. For the entire year of 1935 he delivered only 186 pounds of excess milk. This producer complained of having too low a base. It was raised on November 1, 1936, to 100 pounds and on March 1, 1937, to 125 pounds. With this higher base he increased his deliveries so that in 1937 he was marketing a much greater proportion of excess milk to total sales. His total sales in 1935 were 29,055 pounds, and in 1937 they were 51,809 pounds. His variation in monthly deliveries had changed greatly from 1935 to 1937. In 1935 his highest month was 2,851 pounds and his lowest 1,685; in 1937 his highest month was 6,549 pounds and his lowest 1,214 pounds. In 1937 he failed to deliver his assigned base in the last 5 months of the year. As a result of this shift this producer has the distinction of being one of the seven producers who dropped from the high group to the low group, ranking first in 1935 and sixty-eighth in 1937. When interviewed in the spring of 1937 he expressed himself as not entirely satisfied with the base and surplus plan.

MONTH	ASSIGNED BASE PER DAY	ASSIGNED BASE PER MONTH	MILK DELIVERED TOTAL	MILK DELIVERED BASE	MILK DELIVERED EXCESS	UNDELIVERED BASE
	LB.	LB.	LB.	LB.	LB.	LB.
1935:						
JANUARY	88	2,728	2,698	2,698		30
FEBRUARY		2,464	2,492	2,464	28	
MARCH		2,728	2,763	2,728	35	
APRIL		2,640	2,480	2,480		160
MAY		2,728	2,851	2,728	123	
JUNE		2,640	2,619	2,619		21
JULY		2,728	2,404	2,404		324
AUGUST		2,728	2,272	2,272		456
SEPTEMBER		2,640	2,486	2,486		154
OCTOBER		2,728	1,877	1,877		851
NOVEMBER		2,640	1,685	1,685		955
DECEMBER		2,728	2,428	2,428		300
TOTAL		32,120	29,055	28,869	186	3,251
1936:						
JANUARY	88	2,728	3,098	2,728	370	
FEBRUARY		2,552	2,995	2,552	443	
MARCH		2,728	2,714	2,714		14
APRIL		2,640	2,984	2,640	344	
MAY		2,728	4,361	2,728	1,633	
JUNE		2,640	4,323	2,640	1,684	
JULY		2,728	4,282	2,728	1,554	
AUGUST		2,728	4,500	2,728	1,772	
SEPTEMBER		2,640	4,051	2,640	1,411	
OCTOBER		2,728	3,036	2,728	308	
NOVEMBER	100	3,000	2,733	2,733		267
DECEMBER		3,100	3,677	3,100	577	
TOTAL		32,940	42,755	32,659	10,096	281
1937:						
JANUARY	100	3,100	5,622	3,100	2,522	
FEBRUARY		2,800	5,651	2,800	2,851	
MARCH	125	3,875	6,549	3,875	2,674	
APRIL		3,750	6,211	3,750	2,461	
MAY		3,875	5,763	3,875	1,888	
JUNE		3,750	5,403	3,750	1,653	
JULY		3,875	4,214	3,875	339	
AUGUST		3,875	3,713	3,713		162
SEPTEMBER		3,750	3,492	3,492		258
OCTOBER		3,875	2,523	2,523		1,352
NOVEMBER		3,750	1,454	1,454		2,296
DECEMBER		3,875	1,214	1,214		2,661
TOTAL		44,150	51,809	37,421	14,388	6,729

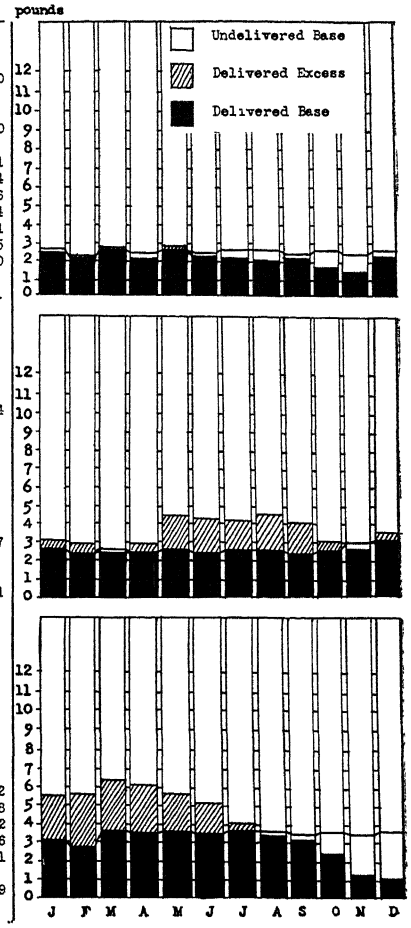

Fig. 4.—Monthly delivery record for 1935, 1936, and 1937 of producer A (producer 1, table 2), Stark County study

Producer B was sixth in 1935, second in 1936, and sixteenth in 1937 (see fig. 5). Here is an outstanding example of using an additional outlet besides the regular surplus market for a large part of production over assigned base. This is one of the larger operators. His base in 1935 and 1936 was 199 pounds. This farm is located near a local cheese factory and the aim is to deliver practically all the excess over base to the factory. These deliveries averaged in 1934, 1935, and 1936 approximately 30,000 pounds per year. This producer estimated that his returns from disposing of excess in this way were about 20 cents per hundred higher than he would have received through the market plan. A study of this producer's experience in 1936 affords an illustration of some of the difficulties involved in marketing through two outlets at the same time.

During 1936 he was not careful to see that his daily deliveries were equal to or slightly above his base allotments; as a result, he not only failed to take advantage of the base price on his full assignment, but he came out with a performance record that lowered his base for 1937 to 180 pounds, a loss of 19 pounds per day from his 1935 and 1936 base.

MONTH	ASSIGNED BASE PER DAY	ASSIGNED BASE PER MONTH	MILK DELIVERED TOTAL	MILK DELIVERED BASE	MILK DELIVERED EXCESS	UNDELIVERED BASE
	LB.	LB.	LB.	LB.	LB.	LB.
1935:						
JANUARY	199	6,169	5,570	5,570		599
FEBRUARY		5,572	5,015	5,015		557
MARCH		6,169	4,975	4,975		1,194
APRIL		5,970	5,675	5,675		295
MAY		6,169	6,354	6,169	185	
JUNE		5,970	5,649	5,649		321
JULY		6,169	5,599	5,599		570
AUGUST		6,169	5,603	5,603		566
SEPTEMBER		5,970	6,268	5,970	298	
OCTOBER		6,169	6,777	6,169	608	
NOVEMBER		5,970	5,772	5,772		198
DECEMBER		6,169	6,637	6,637	468	
TOTAL		72,635	69,994	69,803	1,559	4,300
1936:						
JANUARY	199	6,169	6,010	6,010		159
FEBRUARY		5,771	4,420	4,420		1,351
MARCH		6,169	5,395	5,395		774
APRIL		5,970	5,353	5,353		617
MAY		6,169	6,736	6,169	567	
JUNE		5,970	6,012	5,970	42	
JULY		6,169	5,408	5,408		761
AUGUST		6,169	5,388	5,388		781
SEPTEMBER		5,970	5,970	5,970		
OCTOBER		6,169	6,268	6,169	99	
NOVEMBER		5,970	4,661	4,661		1,309
DECEMBER		6,169	4,971	4,971		1,198
TOTAL		72,834	66,592	65,884	708	6,950
1937:						
JANUARY	199	6,169	4,497	4,497		1,672
FEBRUARY	180	5,040	4,463	4,463		577
MARCH		5,580	6,080	5,580	500	
APRIL		5,400	7,700	5,400	2,300	
MAY		5,580	7,079	5,580	1,499	
JUNE		5,400	6,732	5,400	1,332	
JULY		5,580	5,210	5,210		370
AUGUST		5,580	5,090	5,090		490
SEPTEMBER		5,400	4,916	4,916		484
OCTOBER		5,580	4,992	4,992		588
NOVEMBER		5,400	4,738	4,738		662
DECEMBER		5,580	5,855	5,580	275	
TOTAL		66,289	67,352	61,446	5,906	4,843

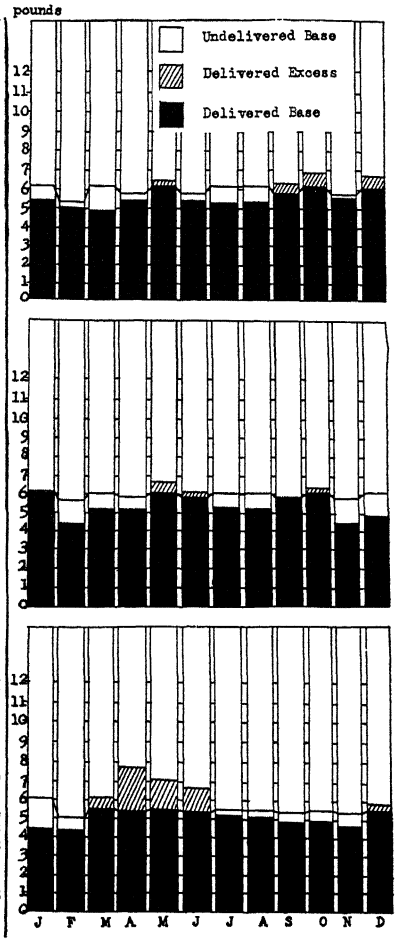

Fig. 5.—Monthly delivery record for 1935, 1936, and 1937 of producer B (producer 6, table 2), Stark County study

A simple calculation shows that this was a costly oversight. In 1937 the average base price was $2.13 and the average excess price was $1.59. He therefore sacrificed the difference between 72,834 and 66,289, or 6,545 pounds of base sales. At a difference of 54 cents between average base and average excess

price, this represented a loss of $35.34 for the year. If his sales to the cheese factory netted him a premium of 20 cents over the excess price, he still suffered a loss of $22.25 on the year's sales.

Producer C was third in 1935, fourth in 1936, and nineteenth in 1937, placing well within the top third in average returns for all 3 years (see table 6). This is a good example of a consistently even producer operating an intensive dairy farm. The one serious slip was October 1935. He has a farm of 116 acres on which he keeps 12 to 14 cows. In 1935 with total sales of 58,571 pounds, he marketed only 980 pounds of excess through the market pool, but for 3 months he withheld about 40 pounds a day of surplus and sent it to a local cheese factory. His daily base in 1935 and 1936 was 176 pounds; in 1937 it dropped to 170 pounds. By 1937 his total sales had risen to 71,572 pounds. This rapid increase placed him at a slight disadvantage and resulted in his dropping to nineteenth place in 1937. This producer is well satisfied with the market plan and does not contemplate any substantial change in his production for the succeeding 3 years.

TABLE 6.—Monthly delivery record for producer C, Stark County study, 1935, 1936, and 1937

Month	Assigned base		Milk delivered			Undelivered base
	Per day	Per month	Total	Base	Excess	
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
1935:						
January	176	5,456	5,282	5,282	.....	174
February	.....	4,928	5,008	4,928	80	.....
March	.....	5,456	5,596	5,456	140	.....
April	.....	5,280	5,680	5,280	400	.....
May	.....	5,456	5,627	5,456	171	.....
June	.....	5,280	5,469	5,280	189	.....
July	.....	5,456	5,208	5,208	.....	248
August	.....	5,456	4,782	4,782	.....	674
September	.....	5,280	4,203	4,203	.....	1,077
October	.....	5,456	2,703	2,703	.....	2,753
November	.....	5,280	4,588	4,588	.....	692
December	.....	5,456	4,425	4,425	.....	1,031
Total	.....	64,240	58,571	57,591	980	6,649
1936:						
January	176	5,456	4,890	4,890	.....	566
February	.....	5,104	4,728	4,728	.....	376
March	.....	5,456	4,965	4,965	.....	491
April	.....	5,280	5,650	5,280	370	.....
May	.....	5,456	5,643	5,456	187	.....
June	.....	5,280	5,461	5,280	181	.....
July	.....	5,456	5,031	5,031	.....	425
August	.....	5,456	5,823	5,456	367	.....
September	.....	5,280	5,259	5,259	.....	21
October	.....	5,456	4,864	4,864	.....	592
November	.....	5,280	5,016	5,016	.....	264
December	.....	5,456	5,138	5,138	.....	318
Total	.....	64,416	62,468	61,363	1,105	3,053
1937:						
January	176	5,456	5,237	5,237	.....	219
February	170	4,760	5,235	4,760	475	.....
March	.....	5,270	6,844	5,270	1,574	.....
April	.....	5,100	6,164	5,100	1,064	.....
May	.....	5,270	6,889	5,270	1,619	.....
June	.....	5,100	5,621	5,100	521	.....
July	.....	5,270	5,371	5,270	101	.....
August	.....	5,270	6,881	5,270	1,611	.....
September	.....	5,100	6,262	5,100	1,162	.....
October	.....	5,270	6,126	5,270	856	.....
November	.....	5,100	5,479	5,100	379	.....
December	.....	5,270	5,463	5,270	193	.....
Total	.....	62,236	71,572	62,017	9,555	219

Producer D was fourth in 1935, first in 1936, and second in 1937. He has the distinction of being the only producer to be within the top five in all 3 years (see table 7). This is the most outstanding example of consistently even deliveries over the 3-year period. In 1935, deliveries were base 58,744, excess 1,287 pounds; in 1936, base 58,466, excess 289 pounds; and in 1937, base 58,438, excess 978 pounds. His base remained at 162 pounds per day throughout the 3 years. He also had an outlet other than the market pool for his excess over base.

TABLE 7.—Monthly delivery record for producer D, Stark County study, 1935, 1936, and 1937

Month	Assigned base		Milk delivered			Undelivered base
	Per day	Per month	Total	Base	Excess	
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
1935:						
January	162	5,022	5,158	5,022	136	.....
February	.....	4,536	4,739	4,536	203	.....
March	.....	5,022	5,212	5,022	190	.....
April	.....	4,860	5,043	4,860	183	.....
May	.....	5,022	5,160	5,022	138	.....
June	.....	4,860	4,883	4,860	23	.....
July	.....	5,022	5,223	5,022	201	.....
August	.....	5,022	4,662	4,662	.....	360
September	.....	4,860	4,913	4,860	53	.....
October	.....	5,022	5,111	5,022	89	.....
November	.....	4,860	4,834	4,834	.....	26
December	.....	5,022	5,093	5,022	71	.....
Total	.....	60,031	59,130	58,744	1,287	386
1936:						
January	162	5,022	5,066	5,022	44	.....
February	.....	4,698	4,629	4,629	.....	69
March	.....	5,022	5,113	5,022	91	.....
April	.....	4,860	4,787	4,787	.....	73
May	.....	5,022	5,130	5,022	108	.....
June	.....	4,860	4,810	4,810	.....	50
July	.....	5,022	4,968	4,968	.....	54
August	.....	5,022	4,732	4,732	.....	290
September	.....	4,860	4,895	4,860	35	.....
October	.....	5,022	4,914	4,914	.....	108
November	.....	4,860	4,678	4,678	.....	182
December	.....	5,022	5,033	5,022	11	.....
Total	.....	59,292	58,755	58,466	289	826
1937:						
January	162	5,022	4,968	4,968	.....	54
February	.....	4,536	4,499	4,499	.....	37
March	.....	5,022	5,084	5,022	62	.....
April	.....	4,860	4,908	4,860	48	.....
May	.....	5,022	5,757	5,022	735	.....
June	.....	4,860	4,837	4,837	.....	23
July	.....	5,022	4,924	4,924	.....	98
August	.....	5,022	4,925	4,925	.....	97
September	.....	4,860	4,993	4,860	133	.....
October	.....	5,022	4,838	4,838	.....	184
November	.....	4,860	4,857	4,857	.....	3
December	.....	5,022	4,826	4,826	.....	196
Total	.....	59,130	59,416	58,438	978	692

Producer E was fifth in 1935, nineteenth in 1936, and ninety-fourth in 1937 (see table 8). This is an excellent example of the effect upon average returns for an entire year's sales when deliveries are such as to give a very slight increase in assigned base while total sales are mounting rapidly. This producer was operating a 120-acre farm with nine cows in 1934, 1935, and 1936. In 1935 and 1936 he had a base of 70 pounds per day. For 1937, owing to a slight

increase of production in the base-making months of 1936, his base was increased to 72 pounds per day. In 1935, with an assigned base of 25,550 pounds, he marketed 22,095 pounds of base and 181 pounds of excess, failing by 3,636 pounds to deliver the base assigned to him. As a result he had a high average return for all milk delivered. In 1936 he was moving slowly away from this position. That year he delivered excess for 6 months of the 12, amounting in all to 3,936 pounds in his total sales of 26,851 pounds. In the first 9 months of 1937 he moved up very rapidly in deliveries. In those 9 months he delivered 16,826 pounds of excess over his base. In October he dropped off very sharply and remained well below his assigned base for the last 3 months of the year. The result of this splurge of production was to bring his average returns for 1937 down to ninety-fourth place. This producer up to the time he was interviewed in the spring of 1937 had depended entirely upon breeding to regulate his production. He was planning to be on a 12-cow basis for 1937 as compared with 9 cows in the preceding 3 years. His increase of

TABLE 8.—Monthly delivery record for producer E, Stark County study, 1935, 1936, and 1937

Month	Assigned base		Milk delivered			Undelivered base
	Per day	Per month	Total	Base	Excess	
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
1935:						
January	70	2,170	1,981	1,981	.....	189
February	.....	1,960	1,781	1,781	.....	179
March	.....	2,170	1,910	1,910	.....	260
April	.....	2,100	1,649	1,649	.....	451
May	.....	2,170	1,853	1,853	.....	317
June	.....	2,100	2,281	2,100	181	.....
July	.....	2,170	2,083	2,083	.....	87
August	.....	2,170	1,590	1,590	.....	580
September	.....	2,100	1,684	1,684	.....	416
October	.....	2,170	1,883	1,883	.....	287
November	.....	2,100	1,593	1,593	.....	507
December	.....	2,170	1,807	1,807	.....	363
Total	.....	25,550	22,095	21,914	181	3,636
1936:						
January	70	2,170	1,856	1,856	.....	314
February	.....	2,030	1,612	1,612	.....	418
March	.....	2,170	1,812	1,812	.....	358
April	.....	2,100	2,057	2,057	.....	43
May	.....	2,170	2,196	2,170	26	.....
June	.....	2,100	3,396	2,100	1,296	.....
July	.....	2,170	2,912	2,170	742	.....
August	.....	2,170	2,810	2,170	640	.....
September	.....	2,100	1,582	1,582	.....	518
October	.....	2,170	1,116	1,116	.....	1,054
November	.....	2,100	2,714	2,100	614	.....
December	.....	2,170	2,788	2,170	618	.....
Total	.....	25,620	26,851	22,915	3,936	2,705
1937:						
January	70	2,170	3,810	2,170	1,640	.....
February	72	2,016	3,590	2,016	1,574	.....
March	.....	2,232	3,980	2,232	1,748	.....
April	.....	2,160	3,922	2,160	1,762	.....
May	.....	2,232	4,587	2,232	2,355	.....
June	.....	2,160	4,803	2,160	2,643	.....
July	.....	2,232	4,747	2,232	2,515	.....
August	.....	2,232	4,170	2,232	1,938	.....
September	.....	2,160	2,811	2,160	651	.....
October	.....	2,232	1,660	1,660	.....	572
November	.....	2,160	1,630	1,630	.....	530
December	.....	2,232	2,091	2,091	.....	141
Total	.....	26,218	41,801	24,975	16,826	1,243

production was not favorably distributed in 1937 to give him promise of any considerable increase in assigned base for 1938. His average monthly production for May, June, and July, 1937, was 4,713 pounds as compared with 1,794 for October, November, and December. At the time of the interview this producer had a very favorable opinion of the marketing plan.

The producers described under A to E, inclusive, were in the group with high average returns. The following group, labeled F to K, inclusive, are from the group with low average returns:

Producer F was thirty-seventh in 1935, sixty-seventh in 1936, and ninety-sixth in 1937 (see table 9). This is an example of movement from a fairly uniform production in 1935, with the exception of October, to extreme fluctuation in 1937. In 1935 this farm sold 40,820 pounds of milk; of this, 34,270 pounds were in base, only 6,550 in excess. By 1937 the total production had risen to 80,995 divided into sales of 42,448 pounds of base and 38,547 pounds of

TABLE 9.—Monthly delivery record for producer F, Stark County study, 1935, 1936, and 1937

Month	Assigned base		Milk delivered			Undelivered base
	Per day	Per month	Total	Base	Excess	
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
1935:						
January	104	3,224	3,777	3,224	553	.....
February	.....	2,912	3,679	2,912	767	.....
March	.....	3,224	3,634	3,224	410	.....
April	.....	3,120	3,935	3,120	815	.....
May	.....	3,224	4,048	3,224	824	.....
June	.....	3,120	4,024	3,120	904	.....
July	.....	3,224	3,829	3,224	605	.....
August	.....	3,224	4,144	3,224	920	.....
September	.....	3,120	3,872	3,120	752	.....
October	.....	3,224	1,157	1,157	.....	2,067
November	.....	3,120	2,349	2,349	.....	771
December	.....	3,224	2,372	2,372	.....	852
Total	.....	37,960	40,820	34,270	6,550	3,690
1936:						
January	104	3,224	3,152	3,152	.....	72
February	.....	3,016	2,736	2,736	.....	280
March	.....	3,224	3,591	3,224	367	.....
April	.....	3,120	4,413	3,120	1,293	.....
May	.....	3,224	6,634	3,224	3,410	.....
June	.....	3,120	6,961	3,120	3,841	.....
July	.....	3,224	6,881	3,224	3,657	.....
August	.....	3,224	6,035	3,224	2,811	.....
September	.....	3,120	4,988	3,120	1,868	.....
October	.....	3,224	3,719	3,224	495	.....
November	.....	3,120	2,994	2,994	.....	126
December	.....	3,224	3,494	3,224	270	.....
Total	.....	38,064	55,598	37,586	18,012	478
1937:						
January	120	3,720	4,488	3,720	768	.....
February	113	3,164	6,064	3,164	2,900	.....
March	156	4,836	9,251	4,836	4,415	.....
April	113	3,390	10,290	3,390	6,900	.....
May	.....	3,503	11,504	3,503	8,001	.....
June	.....	3,390	11,346	3,390	7,956	.....
July	.....	3,503	8,034	3,503	4,531	.....
August	.....	3,503	4,594	3,503	1,091	.....
September	.....	3,390	3,858	3,390	468	.....
October	.....	3,503	3,269	3,269	.....	234
November	.....	3,390	3,735	3,390	345	.....
December	.....	3,390	4,562	3,390	1,172	.....
Total	.....	42,682	80,995	42,448	38,547	234

excess. In average returns per hundred pounds the farm moved from thirty-seventh place in 1935 to ninety-sixth place in 1937. Even with this experience, this producer feels that the base and surplus plan is fair to him.

Producer G was ninety-seventh in average returns per hundredweight in 1935, forty-ninth in 1936, and twenty-fourth in 1937, in the sample of 100 (see fig. 6). This farm is a very good example of what happens when a farm of uneven production reduces total sales for the year by cutting down in the heavy excess months. This farm with a base of 33 pounds in 1935 was almost out of production in January and February and delivered 6,716 pounds of milk in May and June, or 4,703 pounds over the assigned base for the 2 months. The result was a very low average return for the year. In 1936 production declined by 6,363 pounds, but the base remained the same until November when it was

	ASSIGNED BASE		MILK DELIVERED			UNDELIVERED BASE
MONTH	PER DAY	PER MONTH	TOTAL	BASE	EXCESS	
	LB.	LB.	LB.	LB.	LB.	LB.
1935:						
JANUARY	33	1,023	553	553		470
FEBRUARY		924	258	258		666
MARCH		1,023	1,327	1,023	304	
APRIL		990	2,250	990	1,260	
MAY		1,023	3,630	1,023	2,607	
JUNE		990	3,086	990	2,096	
JULY		1,023	2,364	1,023	1,341	
AUGUST		1,023	1,547	1,023	524	
SEPTEMBER		990	1,796	990	806	
OCTOBER		1,023	1,451	1,023	428	
NOVEMBER		990	1,048	990	58	
DECEMBER		1,023	852	852		171
TOTAL		12,045	20,162	10,738	9,424	1,307
1936:						
JANUARY	33	1,023	789	789		234
FEBRUARY		957	737	737		220
MARCH		1,023	854	854		169
APRIL		990	1,125	990	135	
MAY		1,023	1,757	1,023	734	
JUNE		990	2,218	990	1,228	
JULY		1,023	1,445	1,023	422	
AUGUST		1,023	1,112	1,023	89	
SEPTEMBER		990	996	990	6	
OCTOBER		1,023	1,006	1,006		17
NOVEMBER	35	1,050	911	911		139
DECEMBER		1,085	849	849		236
TOTAL		12,200	13,799	11,185	2,614	1,015
1937:						
JANUARY	35	1,085	718	718		367
FEBRUARY	32	896	1,065	896	169	
MARCH		992	1,023	992	31	
APRIL		960	870	870		90
MAY		992	1,195	992	203	
JUNE		960	1,481	960	521	
JULY		992	1,124	992	132	
AUGUST		960	1,160	960	200	
SEPTEMBER		960	936	936		24
OCTOBER		992	579	579		413
NOVEMBER		960	492	492		468
DECEMBER		992	435	435		557
TOTAL		11,741	11,078	9,822	1,256	1,919

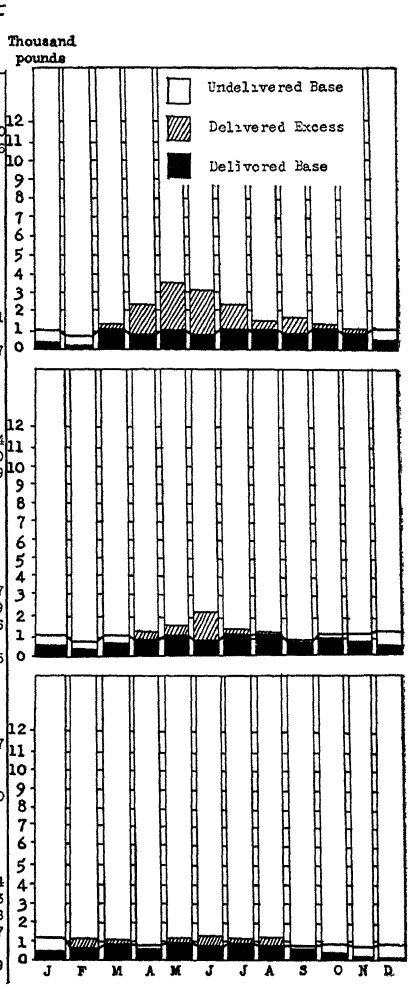

Fig. 6.—Monthly delivery record for 1935, 1936, and 1937 of producer G (producer 97, table 2), Stark County study

raised to 35 pounds. The result was that the farm moved from ninety-seventh place in 1935 to forty-ninth place in 1936. In 1937 base dropped down to 32 pounds, but the same trend of reduction of excess sales in May and June continued, and the farm placed twenty-fourth in 1937. This is one of the five farms that moved from the low third of the 100-man sample to the high third in the 3 years.

Producer H was ninety-eighth in 1935, ninety-ninth in 1936, and eighty-sixth in 1937 (see table 10). He operates a 39-acre farm with a five-cow dairy. His production is variable and his heaviest sales of excess milk have been in the months of lowest price. In 1935 the price of excess milk fell below a dollar in June and July, and over one-third of the excess was sold in these 2 months. This farm has been consistently down near the bottom of the low group. It illustrates the difficulty a five-cow dairy has in maintaining an even flow. This producer has attempted to control his production wholly by breeding. He is

TABLE 10.—Monthly delivery record for producer H, Stark County study, 1935, 1936, and 1937

Month	Assigned base		Milk delivered			Undelivered base
	Per day	Per month	Total	Base	Excess	
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
1935:						
January	35	1,085	1,296	1,085	211	.....
February	.....	980	722	722	.....	258
March	.....	1,085	908	908	.....	177
April	.....	1,050	1,410	1,050	360	.....
May	.....	1,085	3,183	1,085	2,098	.....
June	.....	1,050	3,811	1,050	2,761	.....
July	.....	1,085	3,068	1,085	1,983	.....
August	.....	1,085	2,668	1,085	1,583	.....
September	.....	1,050	3,241	1,050	2,191	.....
October	.....	1,085	2,666	1,085	1,581	.....
November	.....	1,050	2,225	1,050	1,175	.....
December	.....	1,085	1,481	1,085	396	.....
Total	.....	12,775	26,679	12,340	14,339	435
1936:						
January	35	1,085	1,237	1,085	152	.....
February	.....	1,015	1,395	1,015	380	.....
March	.....	1,085	1,770	1,085	685	.....
April	.....	1,050	2,636	1,050	1,586	.....
May	.....	1,085	3,203	1,085	2,118	.....
June	.....	1,050	3,708	1,050	2,658	.....
July	.....	1,085	3,696	1,085	2,611	.....
August	.....	1,085	3,275	1,085	2,190	.....
September	.....	1,050	3,340	1,050	2,294	.....
October	.....	1,085	2,678	1,085	1,593	.....
November	50	1,500	1,622	1,500	122	.....
December	.....	1,550	890	890	.....	660
Total	.....	13,725	29,454	13,065	16,389	660
1937:						
January	50	1,550	1,104	1,104	.....	446
February	49	1,372	1,668	1,372	296	.....
March	.....	1,519	2,516	1,519	997	.....
April	.....	1,470	2,565	1,470	1,095	.....
May	.....	1,519	2,293	1,519	774	.....
June	.....	1,470	2,829	1,470	1,359	.....
July	.....	1,519	2,928	1,519	1,409	.....
August (30 days)	.....	1,519	3,137	1,519	1,618	.....
September	.....	1,470	2,262	1,470	792	.....
October	.....	1,519	1,389	1,389	.....	130
November	.....	1,470	1,071	1,071	.....	399
December	.....	1,519	1,338	1,338	.....	181
Total	.....	17,916	25,100	16,760	8,340	1,166

not entirely clear in his conception of the base and surplus plan. He feels that he should have a base in the market, but he does not realize why he should be burdened with so much excess. In 1935 and 1936 his daily base was 35 pounds. With an increase to 49 pounds in 1937 he advanced from ninety-eighth to eighty-sixth place.

Producer I was ninety-ninth in 1935, eighty-ninth in 1936, and ninety-ninth in 1937 (see table 11). This is an example of a farm that was increasing deliveries very rapidly in the 3 years. The farm appears to have been underbased in 1935 when deliveries never fell below 1,800 pounds a month and the daily base was 42 pounds to September and 48 pounds thereafter. With the rising rate of production the base was increased both in 1936 and 1937, but in 1937 the deliveries of excess were still greatly in excess of base. This is an example of the difficulty of keeping base in adjustment when the rate of production is changing rapidly. It also raises the question whether a producer

TABLE 11.—Monthly delivery record for producer I, Stark County study, 1935, 1936, and 1937

Month	Assigned base		Milk delivered			Undelivered base
	Per day	Per month	Total	Base	Excess	
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
1935:						
January	42	1,302	2,145	1,302	843	.....
February	.....	1,176	2,000	1,176	824	.....
March	.....	1,302	1,933	1,302	631	.....
April	.....	1,260	1,829	1,260	569	.....
May	.....	1,302	4,501	1,302	3,199	.....
June	.....	1,260	4,685	1,260	3,425	.....
July	.....	1,302	3,834	1,302	2,532	.....
August	.....	1,302	3,001	1,302	1,699	.....
September	48	1,440	3,853	1,440	2,413	.....
October	.....	1,488	3,475	1,488	1,987	.....
November	.....	1,440	2,339	1,440	899	.....
December	.....	1,488	2,009	1,488	521	.....
Total	.....	16,062	35,604	16,062	19,542	.....
1936:						
January	48	1,488	1,990	1,488	502	.....
February	.....	1,392	2,142	1,392	750	.....
March	66	2,046	2,313	2,046	267	.....
April	.....	1,980	2,417	1,980	437	.....
May	.....	2,046	3,384	2,046	1,338	.....
June	.....	1,980	4,526	1,980	2,546	.....
July	.....	2,046	5,032	2,046	2,986	.....
August	.....	2,046	5,027	2,046	2,981	.....
September	.....	1,980	4,940	1,980	2,960	.....
October	.....	2,046	5,054	2,046	3,008	.....
November	.....	1,980	3,006	1,980	1,926	.....
December	.....	2,046	2,871	2,046	825	.....
Total	.....	23,076	43,602	23,076	20,526	.....
1937:						
January	66	2,046	3,494	2,046	1,448	.....
February	79	2,212	3,277	2,212	1,065	.....
March	.....	2,449	4,301	2,449	1,852	.....
April	.....	2,370	4,290	2,370	1,920	.....
May	.....	2,449	6,522	2,449	4,073	.....
June	.....	2,370	7,238	2,370	4,868	.....
July	.....	2,449	5,945	2,449	3,496	.....
August	.....	2,449	5,631	2,449	3,182	.....
September	.....	2,370	5,760	2,370	3,390	.....
October	.....	2,449	4,333	2,449	1,884	.....
November	.....	2,370	4,126	2,370	1,756	.....
December	.....	2,449	4,481	2,449	2,032	.....
Total	.....	28,432	59,398	28,432	30,966	.....

can expand production without limit and expect to have assigned base increase at a corresponding rate. This producer never in the 36 months failed to deliver his assigned base and some excess over base. He is attempting to regulate his production both by breeding and by buying cows. He had 7 cows in 1935, 8 in 1936, and had reached his barn capacity of 10 in 1937.

Producer J was eighty-ninth in 1935, one-hundredth in 1936, and ninety-seventh in 1937 (see table 12). In 1935 with a 40-pound base this farm marketed 14,600 pounds of base milk and 13,111 pounds of excess and ranked eighty-ninth. In 1936 with the same base from January to September, inclusive, and a 50-pound base for the remaining 3 months, 15,455 pounds of base and 15,061 pounds of excess were delivered, and the farm dropped to last place in the group. The performance in 1937 was not greatly different, with 20,239 pounds of base and 16,864 pounds of surplus. Inasmuch as the surplus deliveries were very highly concentrated again in the low-price months, the

TABLE 12.—Monthly delivery record for producer J, Stark County study, 1935, 1936, and 1937

Month	Assigned base		Milk delivered			Undelivered base
	Per day	Per month	Total	Base	Excess	
	Lb.	*Lb.*	*Lb.*	*Lb.*	*Lb.*	*Lb.*
1935:						
January	40	1,240	2,311	1,240	1,071	
February		1,120	1,828	1,120	708	
March		1,240	2,107	1,240	867	
April		1,200	1,898	1,200	698	
May		1,240	2,034	1,240	794	
June		1,200	2,273	1,200	1,073	
July		1,240	2,963	1,240	1,723	
August		1,240	3,236	1,240	1,996	
September		1,200	3,138	1,200	1,938	
October		1,240	2,514	1,240	1,175	
November		1,200	2,137	1,200	937	
December		1,240	1,371	1,240	131	
Total		14,600	27,711	14,600	13,111	
1936:						
January	40	1,240	2,133	1,240	893	
February		1,160	2,092	1,160	932	
March		1,240	2,033	1,240	793	
April		1,200	1,976	1,200	776	
May		1,240	3,239	1,240	1,999	
June		1,200	4,879	1,200	3,679	
July		1,240	4,349	1,240	3,109	
August		1,240	3,241	1,240	2,001	
September		1,200	2,294	1,200	1,094	
October	50	1,550	1,445	1,445		105
November		1,500	1,639	1,500	139	
December		1,550	2,196	1,550	646	
Total		15,560	31,516	15,455	15,061	105
1937:						
January	50	1,550	2,197	1,550	647	
February	58	1,624	1,754	1,624	130	
March		1,798	3,396	1,798	1,598	
April		1,740	4,293	1,740	2,553	
May		1,798	5,088	1,798	3,290	
June		1,740	4,917	1,740	3,177	
July		1,798	4,305	1,798	2,507	
August		1,798	3,750	1,798	1,952	
September		1,740	2,678	1,740	938	
October		1,798	1,870	1,798	72	
November		1,740	1,458	1,458		282
December		1,798	1,397	1,397		401
Total		20,922	37,103	20,239	16,864	683

farm moved up only three places to ninety-seventh. It might be said that this farm was slightly underbased in 1935, but in 1936 and 1937 it does not appear to have been so.

Producer K was eighty-second in 1935, eighty-seventh in 1936, and one-hundredth in 1937 (see fig. 7). This producer has a farm of moderate size and a herd of 11 cows. His chart indicates that he has been slipping back in a relative way in the 3 years. In 1935 with a base of 84 pounds he was eighty-second, in 1936 with a base of 95 pounds he was eighty-seventh, and in 1937 with a base of 121 pounds per day he was at the foot of the sample of 100. The reason for this extremely low average return for 1937 is the heavy increase in production in May, June, July, August, and September. This heavy upward

MONTH	ASSIGNED BASE PER DAY	ASSIGNED BASE PER MONTH	MILK DELIVERED TOTAL	MILK DELIVERED BASE	MILK DELIVERED EXCESS	UNDELIVERED BASE
	LB.	LB.	LB.	LB.	LB.	LB.
1935:						
JANUARY	84	2,604	2,501	2,501		103
FEBRUARY		2,352	2,451	2,352	99	
MARCH		2,604	3,742	2,604	1,138	
APRIL		2,520	3,034	2,520	514	
MAY		2,604	6,325	2,604	3,721	
JUNE		2,520	6,484	2,520	3,964	
JULY		2,604	6,489	2,604	3,885	
AUGUST		2,604	4,329	2,604	1,725	
SEPTEMBER		2,520	4,284	2,520	1,764	
OCTOBER		2,604	3,048	2,604	444	
NOVEMBER		2,520	3,509	2,520	989	
DECEMBER		2,604	3,265	2,604	661	
TOTAL		*30,660	49,461	30,557	18,904	103
1936:						
JANUARY	84	2,604	4,915	2,604	2,311	
FEBRUARY	95	2,755	4,004	2,755	1,249	
MARCH		2,945	3,630	2,945	685	
APRIL		2,850	3,536	2,850	686	
MAY		2,945	5,579	2,945	2,634	
JUNE		2,870	6,128	2,870	3,258	
JULY		2,945	6,187	2,945	3,242	
AUGUST		2,945	5,876	2,945	2,931	
SEPTEMBER		2,870	5,615	2,870	2,745	
OCTOBER		2,945	5,362	2,945	2,417	
NOVEMBER		2,870	4,134	2,870	1,264	
DECEMBER		2,945	5,474	2,945	2,529	
TOTAL		34,489	60,440	34,489	25,951	000
1937:						
JANUARY	100	3,100	6,098	3,100	2,998	
FEBRUARY	121	3,381	4,886	3,381	1,505	
MARCH		3,751	5,924	3,751	2,173	
APRIL		3,630	7,006	3,630	3,376	
MAY		3,751	9,878	3,751	6,127	
JUNE		3,630	11,333	3,630	7,703	
JULY		3,751	10,120	3,751	6,369	
AUGUST		3,751	10,015	3,751	6,264	
SEPTEMBER		3,630	9,488	3,630	5,858	
OCTOBER		3,751	6,171	3,751	2,420	
NOVEMBER		3,630	3,243	3,243		387
DECEMBER		3,751	3,643	3,643		108
TOTAL		43,507	87,805	43,012	44,793	495

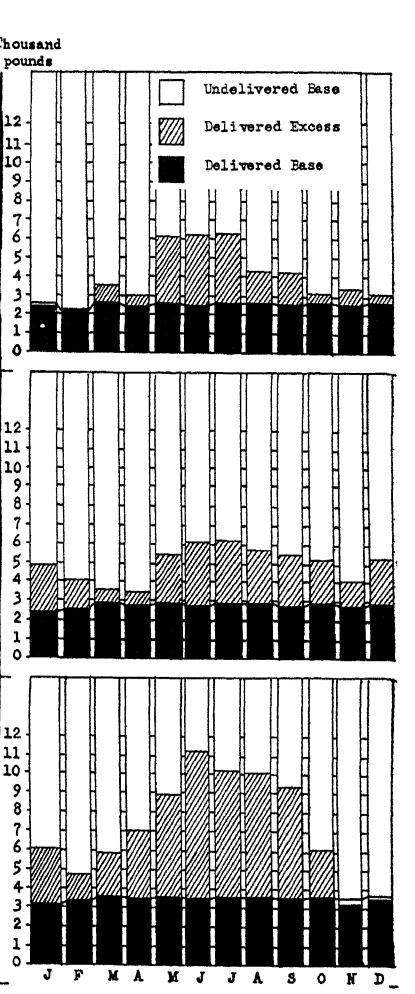

Fig. 7.—Monthly delivery record for 1935, 1936, and 1937 of producer K (producer 82, table 2), Stark County study

surge in production brought him to the end of the year with more sales of excess milk than of base milk to his credit. Putting it another way, this farm was on an ascending scale of production and on increasing base, but its greater production of 1937 was on a more widely fluctuating basis than that of 1935. This producer expressed himself as not in favor of the base and surplus plan. He has good grounds for this position, for he would have been better off by several cents per hundred pounds on a straight pool in 1937.

Some further light can be thrown upon the experience of these 22 producers by summarizing the changes in assigned bases from January 1935 to December 1937, inclusive. These data are given in the last column of table 2. Of the 11 who were in the top 5 sometime in the 3 years, 1 had no change in base, 3 lost a total of 26 pounds of daily base, and 7 were granted increases totaling 119 pounds. The net gain of the 11 was 93 pounds. Of the 11 who were in the lowest 5, there was 1 producer who suffered a loss of a single pound and there were 10 who were granted increases totaling 388 pounds, or a net gain of 387 pounds. The much greater allotment of base in the low group might at first thought appear unwarranted. A careful study of table 5 and figure 3, however, indicates that these adjustments were in line with sound administration of the base and surplus plan if the objective is to keep bases adjusted closely to the ability of the producer to deliver his assigned base from month to month.

WHAT THE FARMER CAN DO ABOUT HOW HE FITS INTO THE MARKETING PLAN

No single farmer can have any great amount of influence upon the marketing plan. It is the result of many years of trial and error and of hundreds of compromises and adjustments. If a farmer thinks the plan is not sound, he can and should do everything in his power to have other farmers join with him in bringing about changes. In the meantime he must face the problem of marketing under the plan for the very best average returns that he can attain.

This problem is different for each farmer. There can be no cut and dried plan that can be handed down from somewhere above all nicely typewritten on a sheet of paper. Marketing of milk must be considered as a part of the entire farm program. If the market is on a flat price or a pool basis there will be times in the year when these prices are relatively higher than at others. They are lowest normally when milk can be produced at the lowest actual outlay cost and highest when it costs most to produce milk. The farmer must decide whether under his particular type of farming he should aim at fairly level production or go very high in flush periods when prices are low and drop off to little or no production in the fall and winter months when prices are higher. If circumstances make summer dairying his choice, he must not expect to have as high average returns for all milk sold as his neighbor who is a winter producer, but neither should his cost of production be as high as that of his neighbor, the winter producer.

If the farm is located near a large consuming center, as were most of the farms in the areas covered in this bulletin, the producer probably will have the choice of a flat price or a base and surplus plan. He may, however, find himself definitely fixed in a base and surplus type of marketing plan with no way to get out of it. In this case the problem is how he can best adjust his production and sales to the plan.

The underlying theory of the base and surplus plan is that it designates what amount of each farmer's milk shall be considered his proper and equitable share of the fresh milk and cream sales of the market. Once this amount has been determined as his assigned or allotted base, it is then assumed that he is to be depended upon to deliver approximately this amount daily. In other words, all producers cannot be under base in the amount of milk delivered to any great degree without tending to throw the plan out of gear. In a base and surplus plan it is essential that the dealers receive a fairly constant volume of base milk deliveries. It is to the best interest of producers that the excess delivered over and above the needs of the market be kept within reasonable limits.

Aside from the obligation that rests on the producer to do his part in keeping the market in a sound condition, there is the matter of the effect upon his financial returns. For an example, turn back to the case of producer A. In 1935 he delivered 28,869 pounds of his assigned base of 32,120 pounds. He might be criticized for his failure to deliver base in October and November to the extent of 851 and 955 pounds (see fig. 4). This record of fairly even deliveries placed him at the top in 1935. Now consider his performance in 1937. Then he delivered more than 2,000 pounds of excess each of the months of January, February, March, and April and dropped under in the months of August to December to a much greater extent than in 1935. The excess price in the first 4 months of 1937 averaged $1.56 per hundred pounds. Had producer A moved 6,729 pounds of his excess deliveries in those 4 months into the 5 months August to December, he would have received for his milk $41.40 more than he actually received for it as excess.

Among the opinions expressed about the operation of the base and surplus plan there were many that were critical. Many of those farmers who complained of low bases were not delivering their assigned base for 2 or more months of the year. At the flush period they were oftentimes sending three times their assigned bases. It is probable that this type of farmer in most instances would be better satisfied if he were on a flat price market even though his average returns for the entire year's sales might not be as high as on the base and surplus plan.

In the study along State Highway No. 42 there were a large number of farms that were going to one or another of the manufacturing plants that were buying on a flat price. On the whole, these farmers appeared as well or better satisfied than did those selling on the base and surplus plan in the city markets. This satisfaction was probably due in a large measure to the fact that they were in a flat price market because they wanted to be. Also, the flat price system is not as complicated as the base and surplus plan, and producers are more likely to be satisfied with a plan they understand fully.

If a producer finds himself in a market using the base and surplus plan he should make himself thoroughly familiar with the plan. He should determine in his own mind what amount of milk he can produce in the short season of production. This amount should then be his goal for assigned base. If his farm organization makes it possible for him to produce a much larger amount for a few summer months it may pay him to accept a rather low base and expect low average returns in the heavy months rather than to try to push up his production in the base-making months. He should, however, not expect to be permitted to be far under base for 2 or 3 months because he was far above for a corresponding number of months. If this type of producer is in a market

where the price paid for excess milk in the fluid market is much lower than that paid for straight manufacturing milk, he will be almost certain to be as well or better satisfied as a shipper to the manufacturing plant on a flat price.

There is another aspect of operation under the base and surplus plan that is a source of a great amount of the dissatisfaction. This is the matter of base adjustments to take care of unusual or extraordinary experiences of the producer. Testing of cattle for tuberculosis or Bang's disease is a good example. A producer may lose all or part of his herd through a test or through such a misfortune as fire or lightning. Obviously it is not fair to place a full year of handicap on the producer's base because this loss happened to fall in the base-making period. Practically all of the markets studied have some provision for base adjustment to cover emergencies of this sort.

If a producer is faced with the need, in his opinion, of an adjustment in his base, he is required in most markets to make application for it. In some cases he is required to appear in person before the base adjustment committee. The procedure followed in Stark County is fairly representative of the other markets, except Cincinnati. The producer fills out a form entitled "Request for Change of Producer's Assigned Base." It is addressed to the Production Control Adjustment Committee of the Stark County Market Sales Area. The producer is required to give full and complete data as to name, location, and size of farm, dealer, and association connections. The section dealing with the herd requires number of milk cows, number milking at time of application, average number for past 2 years, breed, time of freshening of majority of cows, losses by disease eradication, and other changes in the herd. There is also a question as to whether in the past 2 years the shipper has been shut off or degraded by the board of health. The producer then states the amount of his daily production, its present disposal, his present base, and his requested base with full reason for requesting a change. After a review by the committee the request is granted or refused. If the request is granted, the dealer, as well as the producer, is notified of the change and when it is to become effective.

In the Cincinnati market, producers selling through the Cooperative Pure Milk Association are permitted to request a change of base every 3 months. A performed base for the year ending June 30 is established for each producer by the base committee. This base is then used as a yardstick to measure the allotted bases for the ensuing year. From the outset it has been the policy of this association to maintain a close relation between base allotments and total sales of fresh milk and cream. Past experience has proved to the satisfaction of the officers and directors that the plan of quarterly adjustment is sound from the producer's viewpoint. Those producers who are able in the last 6 months of the year to maintain production are the ones who in the main receive the highest bases.

Post cards requesting information concerning the production of milk are mailed to all active members each quarter. The producer when sending in this information is given an opportunity to request an increase in base for the next quarter. Not all requests can be granted in full, but since increased base is not allotted to those who do not desire it, the result is that base increases are awarded to those in best position to produce the milk. The plan avoids awarding additional base to those who are unable to ship the amount already allotted to them.

In this plan there is an added responsibility placed upon the individual producer. He must fill out the card asking for production information and mail it in to the office at the proper time, or in the new allotment of base he may fail to have a grant of additional base which he could ship.

PRODUCER CONTACT WITH DEALER

In the early stages of whole milk marketing to dealers or to buyers of milk for manufacturing, the producer was usually in close contact with the buyer. Many times when new producers were taken on, the buyer himself did the soliciting. In the smaller markets producers often hauled their own milk to the plant and were in daily personal touch with the proprietor of the business. Conditions have changed greatly with the expanding milksheds of the larger markets and with the establishment of the large manufacturing plants drawing from areas covering as much as 20 counties.

In the State Highway Route 42 survey, 70 farmers were asked about their contacts with dealers. Of these, 32 said that they had little or no contact with the dealer to whom they sold except through their cooperative association. There were 38 who reported dealer contacts. Twenty-five of them were being visited more or less regularly by field men of the company to which their milk was going. Only four said that they were in direct contact with the buyer himself. Three mentioned the milk hauler directly as a contact man, but several others in their conversations indicated that they depended largely upon him for what information they got regarding the wishes of the dealer.

In the Stark County group more than half of those who gave their experiences said that they had no present direct contact, approximately one-fourth had direct contact with the buyers, and one-fourth depended upon the association to maintain the contacts.

Because operating companies have become very much larger as cities have grown, the personal acquaintance of a milk buyer and his producer is for the most part a thing of the past. A very few executives have tried to keep in close touch with producers by office conferences or even by visits to the farms, but this practice appears to be on the decline. Many of the producers interviewed said that they would not know their milk dealer if they were to meet him on the street. It could hardly be otherwise under our present system of marketing.

In the larger concerns, particularly those buying milk for manufacturing in the areas studied, field men maintain a fairly constant and regular contact with producers. They, of course, speak with authority for their concerns as to sanitary requirements, methods of purchasing, and routine matters of various kinds. This is, however, a different type of relationship from the old direct seller-buyer relation described before.

With the expansion of the sale of whole milk from farms and the great concentration of population in large urban centers, the cooperative association has come in to represent the marketing interests of the farmer. The dealer contact with the producer in the matter of arriving at prices is now generally in the price conference where the producers are represented by a sales committee. In small markets all the dealers meet the sales committee, but in the largest markets the dealers, through their own association, delegate the bargaining to a committee of dealers. When this method of dealing is in effect, there arises the possibility of some peculiar complications between the individual producer and his dealer. Suppose that the price conference results in a

price that either the dealer or the producer feels is unfair. It may happen that neither of them was in the price conference. In this case, should the producer go directly to the dealer with his complaint or should he register his dissatisfaction with his association leaders and there only? In well-organized markets the complaint goes to the sales committee and not directly to the dealer.

Another awkward situation more likely to arise than one about price is one about the marketing plan. For example, there is never 100 per cent approval of the base and surplus plan of distributing returns to producers. In working out the marketing plan certain dealers and certain producers may oppose the base and surplus plan but on a majority vote of all concerned it is adopted. Under these circumstances should a dealer contrive with a producer to obstruct the smooth working of the plan? Should an opposing dealer attempt to wean away from support of the plan his producers who have already expressed approval of it?

The attitudes of dealers and producers toward the marketing plans were discussed at length at another point. We are concerned here with the relations of the men involved. It is a delicate question around which some tense situations have arisen. It is evident that many buyers look with regret upon the fading personal contacts with producers. The writer believes that there is much to be said for a direct feeling of personal responsibility on the part of the producer for the quality of product and integrity of dealing of his distributor. This may be promoted best by well-established contacts between the two.

On the other hand, when a group of producers pool their interests by forming a producers' cooperative association and delegate to that cooperative corporation the responsibility of devising certain marketing plans and establishing prices for the products, the cooperative leaders have a right to expect that the members will play ball according to the rules. They resent very vigorously efforts on the part of individual producers to weaken or break down either the market plan or the price structure by direct dealing with individual buyers. They resent as strongly efforts on the part of certain dealers to undermine the plan approved by the association and its cooperating dealers.

It would seem that the whole range of producer relationships with buyers can best be worked out on broad lines of common sense. Certainly in an industry where the production and the distribution of the product are so closely associated, there is much to be lost if all producer and buyer contacts are destroyed. On the other hand, when organization becomes the order of the day, then the game must be played on an organized basis, and direct buyer and producer relations must be adjusted to the new order.

DIVISION OF RESPONSIBILITIES AMONG PRODUCERS, ORGANIZATION LEADERS, AND DEALERS

Responsibility for the choice of his market must rest primarily with the producer. In the areas studied it is not a perfectly free choice, but as marketing opportunities now stand, there are few farmers who cannot find a whole milk market if they want it. There are a few farms so handicapped by location on poor dirt roads as to make whole milk transportation the year around impracticable, but they are very few in the northern, central, and southwestern parts of the State where these studies were made. The choice between selling whole milk or sour cream or between dairy cattle and some other species of livestock most often hinges on labor and feed factors and upon personal attitudes toward these various types of farming.

The gross returns will be greater as a rule in whole milk marketing than from sale of sour cream or from making butter or cheese on the farm. A number of supplementary factors, however, must be considered. The first is the amount of change in buildings and equipment that will be necessary. If the operator is a tenant, he must convince the landlord that any building changes required will be a sound investment for him.

The change to sale of whole milk may also involve substantial change in the routine of the farm. It may be necessary to change the time of milking to fit into the schedule of the hauler. On the other hand, the sale of whole milk as compared with sour cream does away with the burdensome labor of separating the milk and caring for cream.

The sale of whole milk is a somewhat different business transaction from sale of sour cream or farm butter. It means the receipt of a single check to cover deliveries of 2 weeks' or a month's production of milk. In most instances sour cream is paid for on each delivery. Waiting for the milk check involves a somewhat greater degree of faith in the buyer, and this factor without doubt has considerable weight with some producers in their choice of a way to market.

Aside from the importance of these more or less intangible things, there is also the feeding value to be placed upon the skim milk. The actual money value of skim milk depends upon the livestock to which it may be fed and the ability of the feeder. It must be kept clearly in mind that skim milk has a high feeding value when fed to good livestock and poultry. Farmers who are a long distance from the market sometimes find that when prices of milk are low, the total value of milk f. o. b. the dealer's platform is not as great when hauling is deducted as the total farm value of sour cream plus the feeding value of the skim milk.

After choice of the type of market is made, there are some other matters that rest almost wholly with the producer himself. He must decide as to the evenness of his production. Consumption of milk does not vary greatly from month to month in a large city. Nature's normal schedule of production is to produce much more milk in the spring and summer months than in fall and winter. Many city markets operate upon what is known as the base and surplus plan, which offers to the producer a premium or reward for even production in terms of a higher average return per hundredweight for all milk sold. If such a plan is in effect the producer still has a choice. He may decide that it is to his advantage, because of a peculiar farm organization both with respect to labor and to pasture, to produce much more milk in certain months than in others. He may then choose to sell with a lower base and hope to come out in the end with as high average net returns as he would if he tried to adjust to higher base production. If there is an alternate market for manufacturing milk on a flat price plan, he may choose that.

There are certain matters in which the dealer makes his choices and the other parties concerned must abide by them. In general, the dealer chooses his source of supply. It must be acceptable to the health authorities of his particular city if it is to be sold as fresh milk. If the dealer is a small operator, he may decide that he will buy his supply entirely from farmers who are not members of any producers' cooperative association. In this event he deals directly with the producer or through a hauler who feels a definite responsibility to the dealer. He has full control of weighing, sampling, and testing. If there is any plan used to classify the milk on the basis of uses or to give the farmer a base and surplus classification, it is done by the dealer with no supervision or

auditing. In the larger city markets most dealers requiring as many as 25 or more producers obtain all or a part of their supply through a cooperative association, but they still have a wide range of choice as to this supply.

The dealer in some measure decides whether he will buy milk of high or low butterfat content. His choice will be determined largely by his type of trade. Some dealers use butterfat in the bottle as a means of competition. In the method of converting sales into pooling classifications, there is an advantage in some Ohio markets to the dealer buying milk of high butterfat content.

The dealer also decides whether he will engage primarily in the sale of fresh milk and cream to retail and wholesale trade or whether he will also manufacture and sell a wide line of dairy products. If he is engaged primarily in the sale of fresh milk and cream he is certain to be interested in a uniform supply. In general he has two choices. The first is to buy direct from producers and as production increases in the spring drop off some producers or in some drastic manner discourage the delivery during the flush season of a part of their production; the second is to buy through a pool or classification plan from a producers' association and pay the higher prices for that going into sale as milk and cream and the lower prices for the excess.

Dealers individually and collectively determine at what prices and in what containers milk shall be sold at retail and wholesale. Markets vary greatly in these respects and the producers have little to say about these things. Some markets retail house to house from trucks or wagons at the same prices as charged in grocery stores; in others there is a differential of 1 cent per quart or more on store sales. In some markets a half-pint of 20 per cent cream sells for the same price as a quart of milk; in others it is much higher. In some markets a customer who buys 4 or more quarts in a single purchase pays less than the single quart rate; in others the single quart rate prevails on all retail sales. In some markets dealers sell milk in gallon jugs direct to consumers; in others they do not.

The responsibility assumed by producer associations varies widely in the areas studied. In the small as well as the large markets, producer associations functioned during the regime of the Ohio Milk Marketing Commission, July 1933 to July 1935, in setting up market agreements for the approval of the Ohio Milk Marketing Commission.

Since the termination of the Commission, some of the smaller associations have had but little influence in market prices and practices. Those associations that are functioning fully take part in arriving at prices in conference with the dealers. They also assume responsibility for working out with dealers a marketing plan to deal with such matters as use classification, base and surplus, and methods of supervising weights and tests.

In Cincinnati, Dayton, Springfield, Columbus, Akron, and Stark County, the association assumes the responsibility of taking the samples and running the butterfat tests. From interviews with producers it would appear that next to a secure market and a fair price, the producer's greatest desire is to have his tests made accurately.

In the Dayton, Akron, and Stark County markets, the association has also taken over practically complete control of the transportation from the farm to the dealer's platform. In addition to this, in the Dayton market the association is making the collections from most of the dealers for milk delivered and writing the checks that go to the members.

The producer association must decide whether there shall be a contribution to support the work of the Dairy Council in its program to increase the consumption of dairy products. It is only feasible to do this on a cooperative basis. Individual producers have no way to make an effective contribution for this purpose.

It is, thus, to be seen that there are some factors in this situation about which the farmer has everything to say, some upon which he can exert some influence, and many others over which he has little or no control. The past 5 years have shown a marked trend toward the assumption of more and more responsibilities by producers' cooperative associations.

SUMMARY AND CONCLUSIONS

This bulletin deals with the experiences of Ohio farmers in marketing whole milk. The emphasis is upon the behavior and the problems of the individual producer. Data were taken from surveys in Green Township, Wayne County; from farms along State Highway 42 selling whole milk; from a sample of 100 farmers in Stark County; from farm account records of 67 farmers in Medina County; and from the dealer statements of a group of farmers in the Toledo area.

One of the first inquiries was directed to the farmer's entrance into a whole milk market. In most instances he was solicited to enter the fluid milk market. The market sought the farmer rather than the farmer the market. Membership in a strong producers' cooperative is a help to the farmer in holding his place in the market. It is easy for an Ohio farmer to find a manufacturing market at present, but the city markets are taking on few new producers.

The dealer's statement is a very important link between the producer and his market. It has value for checking accuracy of payment, as a basis for farm records, and as evidence in court if needed. It should give in detail names of buyer and seller, daily amount delivered, butterfat content, price for milk of base test, butterfat differential, milk classifications, deductions, and net amount of producer's check. Many farmers interviewed are not satisfied with their milk statements.

On weighing and testing about two-thirds of the producers interviewed were satisfied and one-third were not. The best satisfied were those whose cooperative association took samples and did the testing.

The milk trucker holds a very important place because of his daily contact with the producer. Most of the farmers interviewed were satisfied with their trucking arrangements. The most generally approved plan is that in which the producers select their own trucker.

The producer is not wholly satisfied with board of health supervision. He believes that it is necessary, but thinks some regulations unreasonable. Board of health estimates of average cost to equip a farm with 10 cows for city milk production range from $100 to $600. Producer estimates ranged between $50 and $1,000.

Marketing plans affect the returns to individual farmers very definitely. In general, the base and surplus plans reward the farmer with even production. The markets studied included a variety of milk marketing plans from flat price to a combination of use classification and individual base and surplus.

An analysis of returns of 67 farmers in Medina County for 1936 and 1937 revealed that returns were influenced by (1) kind of market; (2) butterfat con-

tent; (3) prevailing prices; (4) transportation costs; (5) marketing plan; (6) seasonality of sales; and (7) financial responsibility of buyer. The range in average returns for 100 pounds at the farm in 1936 was $1.07 to $3.02, and in 1937, $1.74 to $3.23.

Analysis of returns of 100 farmers in Stark County for 1935, 1936, and 1937 brought out the influence of the base and surplus plan upon the average returns per hundred pounds for all milk marketed during the year. The differences in average returns between the highest and the lowest of the sample for the 3 years were: 1935: highest $1.84, lowest $1.42, difference 42 cents; 1936: highest $1.89, lowest $1.62, difference 27 cents; and 1937: highest $2.13, lowest $1.83, difference 30 cents.

When the 100 Stark County producers were grouped into three equal groups, high, medium, and low, it was possible to study them on the basis of how fixed the order remained from year to year. Thirty-five of the hundred remained for the 3 years in the same group, 31 moved to a position one group higher, 22 moved to a position one group lower, 5 moved from the low one-third to the high one-third, and 7 dropped from the high group to the low group. This represents a high degree of stability in 35 per cent of the sample of 100, moderate fluctuation from a fixed type of performance in 53 per cent of them, and a high degree of instability in the remaining 12 per cent.

A careful analysis of the relation of assigned base, delivered base, and total sales of the 100 producers in Stark County indicated that it has been the policy of the Stark County market to assign base in relation to the ability of the producer to deliver it rather than to keep total assigned base in line with sales of fresh milk and cream.

The deliveries of milk by several individual Stark County producers were tabulated and charted to show various problems facing the farmer in his efforts to obtain a high average return for all milk sold. Under the base and surplus plan the difficulties were greater when the total yearly production was increasing rapidly.

Many farmers interviewed were critical of the marketing plan. In many instances the complaint was that it was impossible under a farmer's peculiar condition to produce so as to have a relatively small amount of excess over base. Some of these producers expressed preference for a pooling plan that results in the same price for all producers.

Producer contacts with dealers have changed materially in the past 20 years. Very few of the men interviewed in all the studies were in direct contact with their dealer.

There is a definite division of responsibilities among the interests represented in milk marketing. Farmers interviewed expressed the feeling that the producer association should be largely responsible for the marketing plan and for the collective sale of the milk. The distributor determines the type of business he will operate and to some extent the kind of milk he will buy. The producer himself must decide what kind of milk, as to butterfat content, he will produce and whether his production shall be uniform from month to month or highly fluctuating.